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VOL. XV.

SMITHSONIAN

MISCELLANEOUS COLLECTIONS.

VOL. XV.

BIBLIOTHECA BODLEIANA

"EVERY MAN IS A VALUABLE MEMBER OF SOCIETY WHO BY HIS OBSERVATIONS, RESEARCHES, AND EXPERIMENTS PROCURES KNOWLEDGE FOR MEN."—SMITHSON.

WASHINGTON:
PUBLISHED BY THE SMITHSONIAN INSTITUTION.
1878.

PHILADELPHIA:
COLLINS, PRINTER.

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JOSEPH HENRY,
Secretary S. I.

SMITHSONIAN MISCELLANEOUS COLLECTIONS.

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BIBLIOGRAPHICAL INDEX

TO

NORTH AMERICAN BOTANY;

OR

CITATIONS OF AUTHORITIES FOR ALL THE RECORDED INDIGENOUS AND NATURALIZED SPECIES OF THE FLORA OF NORTH AMERICA,

WITH

A CHRONOLOGICAL ARRANGEMENT OF THE SYNONYMY.

By SERENO WATSON.

PART I.

POLYPETALÆ.

WASHINGTON:
PUBLISHED BY THE SMITHSONIAN INSTITUTION,
March, 1878.

ADVERTISEMENT.

THIS work is intended to facilitate the labors of botanists by furnishing references to all the published descriptions of species of the flora of North America, with a chronological arrangement of the synonymy, and is published by the Smithsonian Institution at the request of the leading botanists of the United States, who have also contributed to the expense of its preparation.

The first part of the work is now published, as this covers the ground of Vol. I. of Torrey & Gray's Flora of North America, and is complete in itself: the remainder will be printed as soon as the manuscript can be furnished by the author.

JOSEPH HENRY,

Secretary Smithsonian Institution.

WASHINGTON, March, 1878.

PREFACE.

THE following contribution towards a history of the known species of North American plants needs little of introduction or explanation, and nothing of excuse. With the purpose of giving a clew to whatever may have been published respecting each species, all the accessible works touching upon the systematic botany of this country, since the adoption of the Linnean system of nomenclature, have been consulted, including those in the library of the Cambridge Herbarium and the general library of Harvard University, the Public Library of Boston, the library of the Massachusetts Horticultural Society, and others of less importance, and to some extent also the Congressional Library at Washington. Citations at second hand have been only sparingly used.

The territory embraced includes Greenland and the Arctic Coast upon the north, and the borders of Mexico closely adjacent to the United States on the south, the habitat in the latter case being always indicated. For the flora of the region to the west of the Mississippi and northward, the citation of authorities is intended to be full and complete. The same may be said (with some unimportant exceptions) for the Atlantic States prior to 1840, the date of the conclusion of the first volume of Torrey & Gray's Flora of North America. For the subsequent period, the publications of Torrey, Gray, and Chapman have been deemed sufficient in most cases. Others are referred to whenever there is special reason for so doing.

The matter of synonymy has been often a difficult one, in the disagreement of authorities and the frequent uncertainty as to the degree of reliance to be placed upon recorded determinations. For this reason, continual reference has been had to the plants themselves; and the collections in the Harvard University Herbarium, which include in most cases authentic and typical specimens, have been carefully collated under most of the genera for the purpose of confirming the validity of species and the correctness of their synonymy. For species which are also indigenous in other coun-

tries, authorities are cited and synonymy is given as far as they relate to the American habitat, with only partial and general references to foreign botany.

It is intended to give with the final volume a full bibliography, not only of the works and articles here cited, but of all others relating to the North American flora. The abbreviations of titles that are here used, though necessarily concise, will usually suffice for the ready identification of the works cited, without the aid which such bibliography would give. In some instances, however, authors of single works of frequent recurrence are referred to by name only, as Walter (Flora Caroliniana), Persoon (Synopsis Plantarum), Elliott (Sketch of the Botany of South Carolina), Chapman (Flora of the Southern States), etc. In case of several editions of the same work, the first edition is the one cited unless it is otherwise specified, excepting the common manuals of the Eastern flora, of which the later editions have been used (Eaton & Wright, North American Botany, 1841, which is the eighth edition of Amos Eaton's Manual of Botany; Wood, Class-Book, 1861; Gray, Manual, 5 ed. 1869). The Genera Plantarum of Bentham & Hooker has been followed in the sequence of the orders, while the genera and species are arranged alphabetically for greater facility of reference. The authorities under each specific name, as also the citations from each author, are arranged in chronological order. Citations of plates or figures are made more prominent by the use of heavy-faced type; where the reference is simply to a catalogue name or habitat, without any note descriptive or otherwise important, the numerals are in antique type. Introduced species have the specific name in small capitals.

SERENO WATSON.

CAMBRIDGE, March 1, 1878.

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A. heterophylla. Nutt.; Wood, Cl.-Book, 204; Bot. & Fl. 18. Young, Fl. Tex. 141.

A. Caroliniana, var. *heterophylla.* Torr. & Gray, Fl. 1. 12.

A. multifida. Poir. Suppl. 1. 364. DC. Syst. 1. 209; Prodr. 1. 21. Deless. Icon. Sel. 1. 4, **t. 16.** Spreng. Syst. 2. 663. Hook. Fl. Bor.-Am. 1. 7. Don, Mill. 1, 20. Pritz. in Linn. 15. 672 (Walp. Rep. 1. 28). Dietr. Syn. 3. 333. Torr. Fl. N. Y. 1. 9, **t. 2**; Bot. Wilkes, 212. Seem. Bot. Herald, 22 & 50. Gray, Ives's Rep. 5; Am. Jour. Sci. 2. 33. 249; Proc. Acad. Philad. 1863, 56; Manual, 37. Pl. Bourgeau, 254. Matthew, Canad. Nat. 12. 158. Lawson, Ranunc. Canad. 24. Watson, King's Rep. 5. 5. Porter, Hayd. Rep. 1870, 472; 1871, 477; Fl. Col. 2. Coulter, Hayd. Rep. 758. Brew. & Wats. Bot. Calif. 1. 4.

A. Commersoniana. DC. in Deless. Icon. 1. 4, **t. 17.** Spreng. Syst. 2. 662. Don, Mill. 1. 19.

A. Hudsoniana. Richards. in Frankl. Journ. 18. Spreng. Syst. 4². 220. Don, Mill. 1. 20. Torr. & Gray, Fl. 1. 13 & 658.

A. Baldensis, not Linn. Hook. Fl. Bor.-Am. 1. 15. Don, Mill. 1. 18. Torr. & Gray, Fl. 1. 12.

A. narcissiflora. Hook. & Arn. Bot. Beechey, 121.

A. lanigera. Gay, Fl. Chil. 1. 22. Walp. Ann. 1. 6.

A. narcissiflora, Linn. See DC. Syst. 1. 212; Pritz. in Linn. 15, 685 (Walp. Rep. 1. 30); Ledeb. Fl. Ross. 1. 18 & 728. — Pursh, 387. Hook. Fl. Bor.-Am. 1. 8. Bong. Sitch. 123. Schlecht. in Linn. 6. 576. Torr. & Gray, Fl. 1. 14. Regel & Tilg. Fl. Ajan. 27. Hook. f., Arct. Pl. 283. Wood, Cl.-Book, 203. Gray, Proc. Acad. Philad. 1863, 56. Rothr. Fl. Alask. 442. Lawson, Ranunc. Canad. 30. Porter, Fl. Col. 2. Torr. Bot. Wilkes, 212.

A. nemorosa, Linn. See DC. Syst. 1. 203; Pritz. in Linn. 15. 650 (Walp. Rep. 1. 25); Ledeb. Fl. Ross. 1. 15. — Michx. Fl. 1. 319. Pursh, 387. Elliott, 2. 53. Bigel. Fl. Bost. 2 ed. 222. DC. Prodr. 1. 20. Spreng. Syst. 2. 661. Hook. Fl. Bor.-Am. 1. 6; Lond. Jour. Bot. 6. 66. Don, Mill. 1. 19. Torr. & Gray, Fl. 1. 12. Pritzel, l. c. Torr. Fl. N. Y. 1. 7; Pac. R. Rep. 4. 61; Bot. Wilkes, 212. Parry, Pl. Minn. 608. Maxim. Fl. Amur. 17. Hook. f., Arct. Pl. 283. Pl. Bourgeau, 254. Gray, Manual, 38. Lawson, Ranunc. Canad. 27. Traill, Canad. Fl. 81, **t. 10**. Boland. Cat. 3. Brew. & Wats. Bot. Calif. 1. 4.

A. quinquefolia. Linn. Spec. 541. Lam. Dict. 1. 168. Willd. Spec. 2. 1281. Persoon, 1. 97. Barton, Fl. Phil. 2. 20; Fl. N. Am. 2. 7, **t. 39**.

A. pedata. Raf. Jour. Bot. 1. 230. Poir. Suppl. 5. 550. DC. Syst. 1. 214; Prodr. 1. 22. Don, Mill. 1. 21. Walp. Rep. 1. 31. Dietr. Syn. 3. 335.

A. lancifolia. Pursh, 387. DC. Syst. 1. 205; Prodr. 1. 20. Torr. Compend. 223. Don, Mill. 1. 19.

? *A. minima*. DC. Syst. 1. 206; Prodr. 1. 20.

Var. (= *A. trifolia*, Linn.) Gray, Amer. Nat. 7. 422.

A. parviflora. Michx. Fl. 1. 319. DC. Syst. 1. 200; Prodr. 1. 19. Richards. in Frankl Journ. 12. Spreng. Syst. 2. 661. Hook. Fl. Bor.-Am. 1. 5. Meyer, Pl. Labr. 95. Don, Mill. 1. 38. Cham. in Linn. 6. 574. Hook. & Arn. Bot. Beechey, 121. Torr. & Gray, Fl. 1. 12. Pritz. in Linn. 15. 632 (Walp. Rep. 1. 23). Ledeb. Fl. Ross. 1. 16. Dietr. Syn. 3. 332. Seem. Bot. Herald, 22. Hook. f., Jour. Linn. Soc. 1. 124; Arct. Pl. 283. Pl. Bourgeau, 254. Rothr. Fl. Alask. 442. Gray, Manual, 68. Lawson, Ranunc. Canad. 23. Porter, Fl. Col. 2.

A. cuneifolia. Juss. Ann. Mus. 3. 248, **t. 21, fig. 1**. Persoon, 2. 97. Pursh, 386.

A. borealis. Richards. in Frankl. Journ. 12. Meyer, Pl. Labr. 95.

A. sylvestris, β alba minor. Schrank, Pl. Lab. 28.

A. patens. Linn. Spec. 538. See syn. in DC. Syst. 1. 191; Pritz. in Linn. 15. 579 (Walp. Rep. 1. 16); Ledeb. Fl. Ross. 1. 19 & 729; Regel, Fl. Ost-Sib. 1. 20. — Hook. Fl. Bor.-Am. 1. 4. Torr. & Gray, Fl. 1. 11. Torrey, Nicollet's Rep. 144. Gray, Manual, 1 ed. 5. Hook. f., Arct. Pl. 283. Pl. Bourgeau, 254. Rothr. Fl. Alask. 442.

Var. **Nuttalliana**. Gray, Manual, 86. Porter, Hayd. Rep. 1870, 472; Fl. Col. 2.

Clematis hirsutissima. Pursh, 385. Poir. Suppl. 6. 623. DC. Syst. 1. 155.

A. Ludoviciana. Nutt. Gen. 2. 20. James, Catalogue, 183. Torr. Ann. Lyc. N. Y. 2. 163.

A. Nuttalliana. DC. Syst. 1. 193; Prodr. 1. 17. Richards. in Frankl. Journ. 12. Nutt. in Jour. Acad. Philad. 5, 158, **t. 8**; Pl. Wyeth, in same, 7. 7. Don, Mill. 1. 16. Dietr. Syn. 3. 331.

Pulsatilla Nuttalliana. Spreng. Syst. 2. 668. Gray, Manual, 2 ed. 4; Am. Jour. Sci. 2. 33. 410; Proc. Acad. Philad. 1863, 56.

A. flavescens. Zucc. in Regensb. Zeit. 1. 371. Pritz. in Linn. 15. 585 (Walp. Rep. 1. 16).

Pulsatilla patens, var. (*Wolfgangiana*). Ledeb. l. c. Turcz. Fl. Baic. 1. 86. Trautv. & Mey. Fl. Och. 7. Regel, l. c.

Pulsatilla patens. Gray, Genera, 1. 18, **t. 3**; Pl. Fendl. 4; Pac. R. Rep. 12. 40. Parry, Pl. Minn. 608. Lawson, Ranunc. Canad. 22.

A. Richardsoni. Hook. Fl. Bor.-Am. 1. 6, **t. 4, fig. A**. Don, Mill. 1. 19. Schlecht. in Linn. 6. 575. Torr. & Gray, Fl. 1. 13. Ledeb. Fl. Ross. 1. 16. Pritz. in Linn. 15. 644 (Walp. Rep. 1. 24). Dietr. Syn. 3. 333. Seem. Bot. Herald, 22. Lange,

Pl. Grönl. 128. Hook. f., Jour. Linn. Soc. 1. 120 & 124; Arct. Pl. 283 & 811. Regel & Til. Fl. Ajan. 27. Rothr. Fl. Alask. 442. Lawson, Ranunc. Canad. 29.

A. ranunculoides, var. Richards. in Frankl. Journ. 12.

A. Vahlii. Hornem. Fl. Dan. 13, t. **2176**.

A. Virginiana. Linn. Spec. 540. Lam. Dict. 1. 167. Walt. Fl. Car. 157. Gært. Fruct. 1. 357, t. **74**. Ait. Hort. Kew. 2. 256. Willd. Spec. 2. 1279. Michx. Fl. 1. 320. Persoon, 2. 97. Schult. Obs. Bot. 102. Pursh, 388. DC. Syst. 1. 208; Prodr. 1. 21. James, Long's Exped. 1. 63. Spreng. Syst. 2. 662. Hook. Fl. Bor.-Am. 1. 7, t. **4, fig. B**; Jour. Bot. 1. 187. Don, Mill. 1. 20. Torr. & Gray, Fl. 1. 13. Spach, Hist. Veg. 7. 247. Pritz. in Linn. 15. 671 (Walp. Rep. 1. 28). Dietr. Syn. 3. 333. Torr. Fl. N. Y. 1. 8. Lesqx. Fl. Arkansas, 346. Parry, Pl. Minn. 608. Chapman, 5. Pl. Bourgeau, 254. Baillon, Hist. Pl. 1. 46, **fig. 81, 82**. Gray, Manual, 37. Lawson, Ranunc. Canad. 25.

A. hirsuta. Moench, Meth. 105.

A. Walteri. Pursh, 387. Poir. Suppl. 5. 550. DC. Syst. 1. 214; Prodr. 1. 22. Elliott, 2. 54. Don, Mill. 1. 21. Torr. & Gray, Fl. 1. 14. Pritz. in Linn. 15. 697 (Walp. Rep. 1. 31). Dietr. Syn. 3. 335. Very doubtful species.

Thalictrum Carolinianum. Walt. Fl. Car. 157. Spreng. Syst. 2. 674.

CROSS-REFERENCES.

A. aconitifolia; dichotoma.
Baldensis; multifida.
Berlandieri; decapetala.
borealis; parviflora.
Canadensis; dichotoma.
Caroliniana; decapetala, heterophylla.
Commersoniana; multifida.
cuneifolia; parviflora.
flavescens; patens.
Grœnlandica; Coptis trifolia.
hirsuta; Virginiana.
Hudsoniana; multifida.
irregularis; dichotoma
lancifolia; nemorosa.
A. lanigera; multifida.
Ludoviciana; patens.
minima; nemorosa.
narcissiflora; multifida.
Nuttalliana; patens.
pedata; nemorosa.
Pennsylvanica; dichotoma.
quinquefolia; nemorosa.
ranunculoides; Richardsoni.
sylvestris; parviflora.
tenella; decapetala.
thalictroides; Thalictrum anemonoides.
trilobata; decapetala.
Vahlii; Richardsoni.

AQUILEGIA brevistyla. Hook. Fl. Bor.-Am. 1. 24. Don, Mill. 1. 49. Torr. & Gray, Fl. 1. 30. Walp. Rep. 1. 51. Dietr. Syn. 3. 290. Seem. Bot. Herald, 50. Hook. f., Arct. Pl. 284 & 313. Pl. Bourgeau, 254. Lawson, Ranunc. Canad. 47.

A. vulgaris? Richards. in Frankl. Journ. 12.

A. vulgaris, var. *brevistyla*. Gray, Am. Jour. Sci. 2. 33. 410; Proc. Acad. Philad. 1863, 57. Porter, Fl. Col. 4.

A. cærulea. James, Long's Exped. 2. 345. Torr. Ann. Lyc. N. Y. 2. 164; Fremont's Rep. 87. Don, Mill. 1. 49. Torr. & Gray, Fl. 1. 30. Hook. & Arn. Bot. Beechey, 317, t. **72**. Walp. Rep. 1. 51. Dietr. Syn. 3. 290. Gray, Am. Jour. Sci. 2. 33. 410; Proc. Acad. Philad. 1863, 57. Hook. f., Bot. Mag. t. **5477**. Moore, Fl. Mag. t. **254**. Wood, Bot. & Fl. 22. Watson, King's Rep. 5. 16. Porter, Hayd. Rep. 1870, 472; 1871, 477; Fl. Col. 4. Coulter, Hayd. Rep. 1872, 759.

A. leptoceras. Nutt. in Jour. Acad. Philad. 7. 9. Hook. Bot. Mag. t. **4407**.

A. Canadensis. Linn. Spec. 533. Hill, Veg. Syst. 24, t. **23, fig. 2**. Lam. Dict.

1. 150. Amer. Gewachs. t. **184.** Walt. Fl. Car. 156. Ait. Hort. Kew. 2. 248. Sims, Bot. Mag. t. **246.** Willd. Spec. 2. 1247. Michx. Fl. 1. 316. Schkuhr, Handb. t. **146.** Pursh, 372. DC. Syst. 1. 337; Prodr. 1. 50. Barton, Fl. N. Am. 1. 130, t. **36.** Elliott, 2. 20. Lodd. Bot. Cab. t. **888.** Spreng. Syst. 2. 680. Maund, Bot. Gard. 7, t. **322.** Hook. Fl. Bor.-Am. 1. 24, in part. Don, Mill. 1. 49. Audubon, Birds, 3, t. **155.** Torr. & Gray, Fl. 1. 29; Pac. R. Rep. 2. 119. Spach, Hist. Veg. 7. 335. Walp. Rep. 1. 51. Dietr. Syn. 3. 290. Torr. Fl. N. Y. 1. 20; Nicoll. Rep. 144. Nees, Pl. Wied, 3. Gray, Genera, 1. 40, t. **14**; Pl. Fendl. 4; Struct. Bot. 380, fig. **646-650**; Pac. R. Rep. 12. 40; Manual, 45. C. A. Meyer in Sert. Petrop. under t. 11. Parry, Pl. Minn. 609. Hook. f. & Thomp. Fl. Ind. 1. 44. Newberry, Pac. R. Rep. 6. 65. Lesqx. Fl. Ark. 346. Chapman, 9. Hook. f., Arct. Pl. 284 & 313. Pl. Bourgeau, 254. Regel, Ind. Sem. Petr. 1866, 100. Lawson, Ranunc. Canad. 46. Verlot, Pl. Alp. 308, t. **46.** Porter, Fl. Col. 4.

A. variegata. Moench, Meth. 311.

A. elegans. Salisb. Prodr. 374.

A. flaviflora. Tenney, Am. Naturalist, 1. 388.

A. chrysantha. Gray, Proc. Am. Acad. 8. 621. Thurber, Am. Agriculturist, Sept. 1873, with fig. Masters, Gard. Chron. 1873, 1335 & 1501, fig. **304.** Floral Mag. 1873, t. **88.** Porter, Fl. Col. 4.

A. leptocera, var. *flava.* Gray, Pl. Wright, 2. 9; Pl. Thurb. 301. Torrey, Mex. Bound. 30.

A. leptoceras, var. *chrysantha.* Hook. f., Bot. Mag. t. **6073.**

A. flavescens. Watson, King's Rep. 5. 10. Gray, Am. Jour. Sci. 3. 3. 149. Porter, Hayd. Rep. 1871, 477. Coulter, same, 1872, 759.

A. Canadensis, var. *aurea.* Regel, Gart. Fl. 1872, 246 & 258, t. **734.**

A. formosa. Fisch. in DC. Prodr. 1. 50. Spreng. Syst. 2. 680. Don, Mill. 1. 49. Torr. & Gray, Fl. 1. 30. Ledeb. Fl. Ross. 1. 56. Dietr. Syn. 3. 290. C. A. Meyer in Sert. Petrop. under t. 11. Durand, Pl. Pratten. 80. Walp. Ann. 4. 26. Planch. Fl. des Serres, 8. 125, t. **795.** Rothr. Fl. Alask. 442. Gray, Proc. Am. Acad. 7. 328 & 8. 375. Brew. & Wats. Bot. Calif. 1. 10.

A. Canadensis. Hook. Fl. Bor.-Am. 1. 24, in part. Bong. Sitch. 124.

A. arctica. Loud. Hort. Brit. 610.

A. Canadensis, var. Torrey, Pac. R. Rep. 462; Mex. Bound. 30.

A. Canadensis, var. *formosa.* Cooper, Pac. R. Rep. 12. 55. Watson, King's Rep. 5. 10. Torrey, Bot. Wilkes, 216.

A. Jonesii. Parry, Am. Naturalist, 8. 211.

A. truncata. Fisch. & Mey. Ind. Sem. Petr. 1843, Suppl. 8 (Linn. 18. 206; Walp. Rep. 5. 6). C. A. Mey. in Sert. Petr., t. **11.** Brew. & Wats. l. c.

A. Canadensis. Benth. Pl. Hartw. 296.

A. Californica. Lindl. in Gard. Chron. 1854, 836, & 1857, 882. Gray, Proc. Am. Acad. 7. 328. Anderson, Cat. Fl. Nev. 117. Boland. Cat. 3.

A. eximia. Van Houtte, Fl. des Serres, 12. 13, t. **1188** (Walp. Ann. 7. 30). Morren, Belg. Hort. 7, t. **52, fig. 2.**

A. Canadensis, var. *longistyla.* Regel, Ind. Sem. Petr. 1866, 101.

CALTHA leptosepala. DC. Syst. 1. 310; Prodr. 1. 45. James, Long's Exp. 2. 215. Spreng. Syst. 2. 660. Hook. Fl. Bor.-Am. 1. 22, t. **10.** Don, Mill. 1. 44. Torr. & Gray, Fl. 1. 27. Ledeb. Fl. Ross. 1. 49. Dietr. Syn. 3. 335. Gray, Pl. Fendl. 4; Am. Jour. Sci. 2. 33. 409; Proc. Acad. Philad. 1863, 57; Proc. Am. Acad. 8. 375. Rothr. Fl. Alask. 442. Watson, King's Rep. 5. 10. Porter, Hayd. Rep. 1871, 477; Fl. Col. 4. Coulter, Hayd. Rep. 1872, 759. Brew. & Wats. l. c. 9.

C. sagittata. Torr. in Ann. Lyc. N. Y. 2. 164, excl. syn.

C. natans. Pall. Itin. 3. 248. Gmel. Fl. Sib. 4. 192, **t. 82.** Forst. Trans. Linn. Soc. 8. 324. Willd. Spec. 2. 1339. Pursh, 390. DC. Syst. 1. 31; Prodr. 1. 45. Richards. in Frankl. Journ. 14. Hook. Fl. Bor.-Am. 1. 22. Don, Mill. 1. 44. Torr. & Gray, Fl. 1. 27. Ledeb. Fl. Ross. 1. 49. Dietr. Syn. 3. 335. Regel, Fl. Ost-Sib. 1. 52. Lawson, Ranunc. Canad. 45. Referred to *C. palustris* by Hook. f. in Arct. Pl. 283 & 312.

C. palustris, Linn. See syn. in DC. Syst. 1. 308; Ledeb. Fl. Ross. 1. 48 & 734; Hook. f. & Thomp. Fl. Ind. 1. 40; Regel, Fl. Ost-Sib. 1. 52. — Michx. Fl. 1. 324. Pursh, 390. Richards. in Frankl. Journ. 14. Hook. Fl. Bor.-Am. 1. 22. Don, Mill. 1. 43. Schlecht. in Linn. 6. 580. Torr. & Gray, Fl. 1. 26. Torr. Fl. N. Y. 1. 17. Gray, Genera, 1. 32, **t. 10**; Manual, 44. Parry, Pl. Minn. 609. Seem. Bot. Herald, 50. Lesqx. Fl. Ark. 346. Hook. f., Arct. Pl. 283 & 312. Pl. Bourgeau, 254. Baillon, Hist. Pl. 1. 23, **fig. 39-42.** Lawson, Ranunc. Canad. 44.

C. arctica. R. Brown in Parr. 1st Voy. Appx. 265 (Beil. zu Flora, 7^2. 70). Hook. Fl. Bor.-Am. 1. 22. Don, Mill. 1. 44. Torr. & Gray, Fl. 1. 27. Walp. Rep. 1. 47. Dietr. Syn. 3. 335. Seem. Bot. Herald, 50. Hook. f. in Jour. Linn. Soc. 1. 120 & 124. Rothr. Fl. Alask. 442.

Var. **Sibirica.** Regel, Fl. Ost-Sib. 1. 52.

Ranunculus Ficaria. Walt. Fl. Car. 159.

C. ficarioides. Pursh, 389. DC. Syst. 1. 310. Elliott, 2. 66.

C. parnassifolia. Raf. Med. Rep. 5. 361; Jour. Bot. 1. 229. Nutt. Genera, 2. 22. DC. Prodr. 1. 45. Spreng. Syst. 2. 660. Torrey, Compend. 224. Don, Mill. 1. 44.

C. flabellifolia. Pursh, 390, **t. 17.** DC. Syst. 1. 310; Prodr. 1. 45. Spreng. Syst. 2. 659. Torrey, Compend. 224. Don, Mill. 1. 44.

C. dentata. Muhl. Cat. 2 ed. 56.

C. integerrima. Pursh, 390. DC. Syst. 1. 309; Prodr. 1. 45. Spreng. Syst. 2. 659. Torrey, Compend. 224. Don, Mill. 1. 44.

C. asarifolia. DC. Syst. 1. 309; Prodr. 1. 45. Spreng. Syst. 2. 659. Hook. Fl. Bor.-Am. 1. 22. Don, Mill. 1. 44. Torr. & Gray, Fl. 1. 27. Dietr. Syn. 3. 335.

C. palustris, var. *parnassifolia.* Torr. & Gray, Fl. 1. 26. Chapman, 9.

vars. *flabellifolia* and *integerrima.* Torr. & Gray, Fl. 1. 26.

var. *asarifolia.* Rothr. Fl. Alask. 442.

Var. **minima.** Regel, Fl. Ost-Sib. 1. 52.

C. biflora. DC. Syst. 1. 310; Prodr. 1. 45. Spreng. Syst. 2. 660. Hook. Fl. Bor.-Am. 1. 22. Don, Mill. 1. 44. Torr. & Gray, Fl. 1. 27. Dietr. Syn. 3. 336. Torrey, Bot. Wilkes, 215.

CIMICIFUGA Americana. Michx. Fl. 1. 316. Poir. Suppl. 2. 261. Spreng. Syst. 2. 628. Don, Mill. 1. 64. Fisch. & Mey. Ind. Sem. Petr. 1. 21 (Litterb. zu Linn. 10. 82; Ann. Sci. Nat. 2. 4. 334). Torr. & Gray, Fl. 1. 36. Spach, Hist. Veg. 7. 391. Dietr. Syn. 3. 289. Gray, Genera, 1. 52, **t. 30, fig. 14-19**; Manual, 48. Chapman, 12.

Actæa podocarpa. DC. Syst. 1. 382; Prodr. 1. 64. Deless. Icon. Sel. 1, **t. 66.**

C. podocarpa. Elliott, 2. 16.

C. cordifolia. Pursh, 373. Sims, Bot. Mag. **t. 2069.** Elliott, 2. 17, excl. syn. Spreng. Syst. 2. 628. Don, Mill. 1. 64. Fisch. & Mey. ll. cc. Torr. & Gray, 1. 36. Walp. Rep. 1. 60. Gray, Am. Jour. Sci. 1. 42. 47 (Lond. Jour. Bot. 3. 240). Dietr. Syn. 3. 289. Chapman, 12. Wood, Cl.-Book, 211; Bot. & Fl. 23.

C. Americana. Muhl. Cat. 2 ed. 54.

Actæa cordifolia. DC. Syst. 1. 383; Prodr. 1. 64.

C. elata. Nutt. in Torr. & Gray, Fl. 1. 36. Walp. Rep. 1. 61. Dietr. Syn. 3. 289. Gray, Proc. Am. Acad. 8. 375.

C. fœtida. Pursh, 373?

Actæa cimicifuga. Hook. Fl. Bor.-Am. 1. 27.

C. racemosa. Nutt. Genera, 2. 15. Bart. Fl. Phil. 2. 12. Elliott, 2. 16. Torr. & Gray, Fl. 1. 36. Dietr. Syn. 3. 289. Torr. Fl. N. Y. 1. 22, **t. 4.** Gray, Genera, 1. 51, **t. 20**; Manual, 48. Lesqx. Fl. Ark. 347. Chapman, 11. Lawson, Ranunc. Canad. 50.

Actæa racemosa. Linn. Spec. 504; Amœn. 7. 193, **t. 4.** Hill, Veg. Syst. 11. 31, **t. 12, fig. 2.** Lam. Dict. 1. 38. Ait. Hort. Kew. 2. 221. Willd. Spec. 2. 1139. Michx. Fl. 1. 308. DC. Syst. 1. 384; Prodr. 1. 64. Lam. Ill. 315, **t. 448, fig. 2.** Hook. Fl. Bor.-Am. 1. 27. Regel, Gart. Fl. 13. 200, **fig. 443.** Baillon, Hist. Pl. 1. 60, **fig. 103.**

Actæa monogyna. Walt. Fl. Car. 151.

Macrotys actæoides. Raf. in N. Y. Med. Rep. 5. 354; Desv. Jour. Bot. 2. 170.

C. serpentaria. Pursh, 372. Spreng. Syst. 2. 628. Don, Mill. 1. 64.

Botrophis serpentaria. Raf. Med. Fl. 1. 85, **fig. 16.**

Macrotys serpentaria. Eaton, Manual, 4 ed. 356.

Macrotys racemosa. Eaton, Manual, 5 ed. 288. Eat. & Wr. 311.

Botrophis actæoides. Fisch. & Mey. ll. cc. Spach, Hist. Veg. 7. 393.

Actæa orthostachya and *gyrostachya.* Wendroth, "Ind. Sem. h. Marb. 1840" (Litterb. zu Linn. 1841, 100; Walp. Rep. 1. 60).

CLEMATIS alpina, Mill. See syn. in DC. Syst. 1. 165; Schlecht. Linn. 6. 571; Ledeb. Fl. Ross. 1. 4. — Gray, Proc. Acad. Philad. 1863, 56.

Var. Ochotensis. Gray, Am. Jour. Sci. 2. 33. 408. Watson, King's Rep. 5. 3. Porter, Hayd. Rep. 1871, 477; Fl. Col. 1. Coulter, Hayd. Rep. 1872, 758.

Atragene Ochotensis. Pall. Fl. Ross. 2. 69. Gray, Pl. Fendl. 4.

Atragene alpina. Torrey, Mex. Bound. 29. Porter, Hayd. Rep. 1870, 472.

C. Baldwinii. Torr. & Gray, Fl. 1. 8. Walp. Rep. 1. 7. Dietr. Syn. 3. 347. Chapman, 3. Wood, Cl.-Book, 202; Bot. & Fl. 17.

C. Bigelovii. Torrey, Pac. R. Rep. 4. 61.

C. Catesbyana. Pursh, 736. DC. Syst. 1. 142; Prodr. 1. 4. Elliott, 2. 44. Spreng. Syst. 2. 669. Don, Mill. 1. 5. Torr. & Gray, Fl. 1. 657. Chapman, 4. Wood, Cl.-Book, 201; Bot. & Fl. 17.

C. Plukenetii. DC. Syst. 1. 153; Prodr. 1. 7. Spreng. Syst. 2. 665. Don, Mill. 1. 7. Torr. & Gray, Fl. 1. 11 & 657. Dietr. Syn. 3. 347.

C. crispa. Linn. Spec. 543. Walt. Fl. Car. 157. Lam. Dict. 2. 44. Ait. Hort. Kew. 2. 259. Willd. Spec. 2. 1289. Michx. Fl. 1. 318. Persoon, 2. 99. Pursh, 384. Sims, Bot. Mag. **t. 1892.** Elliott, 2. 49. DC. Prodr. 1. 9. Don, Mill. 1. 9. Torr. & Gray, Fl. 1. 10. Dietr. Syn. 3. 349. Loud. Arbor. 1. 243, **fig. 21.** Lindl. Bot. Reg. 32, **t. 60.** Gray, Genera, 1. 16, **t. 2**; Hall, Pl. Tex. 3. Chapman, 3. Wood, Bot. & Fl. 17.

Clematitis crispa. Moench, Meth. 296.

C. viorna. Andr. Bot. Rep. **t. 71,** not Linn.

C. cylindrica. Sims, Bot. Mag. **t. 1160.** Ait. f., Hort. Kew. 3. 343. Pursh, 385. Poir. Suppl. 5. 628. DC. Syst. 1. 156; Prodr. 1. 7. Elliott, 2. 47. Spreng. Syst. 2. 666. Don, Mill. 1. 8. Torr. & Gray, Fl. 1. 10 & 657. Dietr. Syn. 3. 348. Loud. Arbor. 1. 239, **fig. 15.** Gray, Genera, 1. 16; Pl. Lindh. 3; Manual, 36.

C. divaricata. Jacq. Eclog. 1. 51 & 152, **t. 33.**

C. Walteri. Pursh, 384. Poir. Suppl. 5. 623. DC. Syst. 1. 155; Prodr. 1. 7. Elliott, 2. 45. Spreng. Syst. 2. 666. Don, Mill. 1. 7. Hook. Jour. Bot. 1. 185. Dietr Syn. 3. 347.

C. cordata. Sims, Bot. Mag. **t. 1816,** not Pursh. Poir. Suppl. 5. 622.

C. linearifoba. DC. Syst. 1. 155; Prodr. 1. 7. Deless. Icon. 1. 1, **t. 3.** Elliott, 2. 45. Spreng. Syst. 2. 666. Don, Mill. 1. 7, **fig. 4.** Torr. & Gray, Fl. 1. 10. Dietr. Syn. 3. 347.

C. Simsii. Sweet, Hort. Brit. 1. Don, Mill. 1. 8. Walp. Rep. 1. 7. Dietr. Syn. 3. 348. Loud. Arbor. 1. 240, **fig. 16.**

Viticella crispa. Spach, Hist. Veg. 7. 267.

Viorna cylindrica. Spach, Hist. Veg. 7. 269.

C. cylindrica, var. *crispa.* Wood, Cl.-Book, 201.

C. Douglasii. Hook. Fl. Bor.-Am. 1. 1, **t. 1**; Lond. Jour. Bot. 6. 65. Don, Mill. 1. 8. Torr. & Gray, Fl. 1. 8 & 657. Walp. Rep. 1. 7. Dietr. Syn. 3. 348. Gray, Am. Jour. Sci. 2. 33. 408; Proc. Acad. Philad. 1863, 56. Watson, King's Rep. 5. 3. Porter, Hayd. Rep. 1871, 477; Fl. Col. 1. Coulter, Hayd. Rep. 1872, 758. Torrey, Bot. Wilkes, 211.

C. Wyethii. Nutt. in Jour. Acad. Philad. 7. 6. Torr. & Gray, Fl. 1. 8. Walp. Rep. 1. 7.

C. Drummondii. Torr. & Gray, Fl. 1. 9; Pac. R. Rep. 2. 159. Walp. Rep. 1. 7. Dietr. Syn. 3. 345. Gray, Pl. Lindh. 141; Pl. Wright. 1. 7. Seem. Bot. Herald, 267. Torrey, Mex. Bound. 29. Young, Fl. Tex. 140. Brew. & Wats. Bot. Calif. 1. 3.

C. nervata. Benth. Pl. Hartw. 5. Walp. Rep. 1. 7.

C. holosericea. Pursh, 384. Poir. Suppl. 5. 623. DC. Syst. 1. 145; Prodr. 1. 5. Elliott, 2. 45. Spreng. Syst. 2. 669. Don, Mill. 1. 6. Torr. & Gray, Fl. 1. 8 & 657. Dietr. Syn. 3. 345. Chapman, 4. Wood, Bot. & Fl. 17.

C. lasiantha. Nutt.; Torr. & Gray, Fl. 1. 9. Walp. l. c. Eat. & Wr. 200. Dietr. l. c. Seem. Bot. Herald, 267 (to *C. Peruviana,* DC.). Torr. Pac. R. Rep. 4. 61; Mex. Bound. 29, **t. 1.** Wood, Cl.-Book, 202? Boland. Cat. 3. Brew. & Wats. l. c.

C. ligusticifolia. Nutt.; Torr. & Gray, Fl. 1. 9. Walp. l. c. Dietr. l. c. Eat. & Wr. 200. Gray, Pl. Fendl. 3; Pl. Wright. 2. 7; Proc. Bost. Soc. 7. 145; Proc. Acad. Philad. 1863, 56; Proc. Am. Acad. 8. 372. Torrey, Stansbury's Rep. 383; Sitgreave's Rep. 155; Pac. R. Rep. 4. 61; Mex. Bound. 29. Newberry, Pac. R. Rep. 6. 65. Cooper, same, 12. 30. Pl. Bourgeau, 254. Watson, King's Rep. 5. 3. Porter, Hayd. Rep. 1870, 472; 1871, 477; Fl. Col. 1. Coulter, Hayd. Rep. 1872, 758. Brew. & Wats. Bot. Calif. 1. 3.

C. Virginiana. Hook. Fl. Bor.-Am. 1. 1, in part.

Var. **brevifolia.** Nutt.; Torr. & Gray, Fl. 1. 9. Watson, l. c. Coulter, l. c.

Var. **bracteata.** Torrey, Bot. Wilkes. 211.

Var. **Californica.** Watson, Bot. Calif. 1. 3.

C. ligusticifolia, var. *brevifolia.* Benth. Pl. Hartw. 294.

C. ligusticifolia. Dur. & Hilg. Pac. R. Rep. 5. 5. Boland. Cat. 3.

C. ochroleuca. Ait. Hort. Kew. 2. 260. Willd. Spec. 2. 1294. Persoon, 2. 100. Poir. Suppl. 2. 296. DC. Syst. 1. 159; Prodr. 1. 8. Lodd. Bot. Cab. **t. 661.** Elliott, 2. 48. Torrey, Compend. 222; Fl. N. Y. 1. 6, **t. 1.** Spreng. Syst. 2. 665. Don, Mill. 1. 8. Beck, Bot. 4. Torr. & Gray, Fl. 1. 7. Eat. & Wr. 199. Dietr. 3. 348. Lesqx. Fl. Ark. 346. Chapman, 3. Gray, Manual, 35.

C. sericea. Michx. Fl. 1. 319; not HBK. Pursh, 385. Poir. Suppl. 2. 298.

C. ovata. Pursh, 736. DC. Syst. 1. 159; Prodr. 1. 8. Elliott, 2. 48. Spreng. Syst. 2. 665. Don, Mill. 1. 8. Torr. & Gray, Fl. 1. 8 & 657. Dietr. Syn. 3. 348. Chapman, 3. Wood, Bot. & Fl. 17.

C. Pennsylvanica, Donn, Hort. Brit. Muhl. Ind. Fl. Lanc. 172; Cat. 56. Turcz. in Bull. Soc. Mosc. 27 ². 273. Walp. Ann. 7. 4. A doubtful species.

C. Pitcheri. Torr. & Gray, Fl. 1. 10; Pac. R. Rep. 2. 125. Walp. Rep. 1. 7. Dietr. Syn. 3. 348. Gray, Pl. Fendl. 4; Pl. Wright, 2. 7; Manual, 36. Torrey, Marcy's Rep. 280; Mex. Bound. 29. Seem. Bot. Herald, 267 (referring it to *C. reticulata*). Young, Fl. Tex. 140.

C. Coloradoensis. Buckl. Proc. Acad. Philad. 1861, 448. Gray, same, 1862, 161.

C. reticulata. Walt. Fl. Car. 156. Michx. Fl. 1. 318. Persoon, 2. 99. Poir. Suppl. 2. 296. Pursh, 385. DC. Syst. 1. 157; Prodr. 1. 7. Elliott, 2. 47. Spreng. Syst. 2. 666. Don, Mill. 1. 8. Torr. & Gray, Fl. 1. 10 & 658. Dietr. Syn. 3. 348. Loud. Arbor. 1. 240, excl. fig. Lindl. Bot. Reg. 32, under t. 60. Engelm. & Gray, Pl. Lindh. 3. Seem. Bot. Herald, 267. Chapman, 4. Wood, Bot. & Fl. 17.

C. filifera. Benth. Pl. Hartw. 285 (f. Seem. l. c.) Walp. Ann. 2. 4.

Var (?) Gray, Pl. Wright. 2. 7. Torrey, Mex. Bound. 29.

C. Scottii. Porter, Fl. Colorado, 1.

C. verticillaris. DC. Syst. 1. 166; Prodr. 1. 10. Hook. Fl. Bor.-Am. 1. 2; Lond. Jour. Bot. 6. 66. Torr. & Gray, Fl. 1. 10. Torrey, Fl. N. Y 1. 7; Bot. Wilkes, 212. Gray, Manual, 35. Lawson, Ranunc. Canad. 20. Watson, King's Rep. 5. 4. Porter, Hayd. Rep. 1871, 477. Coulter, same, 1872, 758.

Atragene Americana. Sims, Bot. Mag. **t. 887.** Ait. f., Hort. Kew. 3. 342. Pursh, 384. Spreng. Syst. 2. 644. Don, Mill. 1. 10. Spach, Hist. Veg. 7. 260. Dietr. Syn. 3. 349. Loud. Arbor. 1. 248, **fig. 27.** Gray, Genera, 1. 14. **t. 1.** Revue Hort. 1854, **t. 7** and 1855, **t. 17.** Curtis, Bot. N. Car. 120. Chapman, 3. Pl. Bourgeau, 254.

C. Americana. Poir. Suppl. 5. 622.

Atragene Columbiana. Nutt. in Jour. Acad. Philad. 7. 7. Walp. Rep. 1. 9. Dietr. Syn. 3. 350.

C. Columbiana. Torr. & Gray, Fl. 1. 11.

C. Viorna. Linn. Spec. 543. Jacq. f., Ecl. 1. 50, **t. 32.** Lam. Dict. 2. 44. Walt. Fl. Car. 156. Ait. Hort. Kew. 2. 259. Willd. Spec. 2. 1288. Andr. Bot. Rep. 1. 71. Ker, Rev. Bot. Rep. 28. Michx. Fl. 1. 318. Persoon, 2. 99. Pursh, 385. DC. Syst. 1. 156; Prodr. 1. 7. Elliott, 2. 46. Don, Mill. 1. 8. Hook. Jour. Bot. 1. 186. Torr. & Gray, Fl. 1. 9. Dietr. Syn. 3. 347. Loud. Arbor. 1. 238, **fig. 14.** Lindl. Bot. Reg. 32, under t. 60. Parry, Pl. Minn. 608. Chapman, 3. Gray, Manual, 36.

Viorna urnigera. Spach, Hist. Veg. 7. 270.

Var. **coccinea.** James, Long's Exped. 1. 54. Gray, Pl. Wright. 2. 7.

C. Texensis. Buckl. in Proc. Acad. Philad. 1861, 448 and 1870, 135. Gray, in same, 1862, 161.

C. Virginiana. Linn. Amœn. 4. 275. Lam. Dict. 2. 43. Walt. Fl. Car. 157. Ait. Hort. Kew. 2. 259. Willd. Spec. 2. 1290. Michx. Fl. 1. 318. Persoon, 2. 99. Pursh, 384. DC. Syst. 1. 142; Prodr. 1. 4. James, Long's Exped. 2. 343. Elliott, 2. 44. "Wats. Dendr. t. 74." Hook. Fl. Bor.-Am. 1. 1, in part; Lond. Jour. Bot. 6. 66. Don, Mill. 1. 5. Torr. & Gray, Fl. 1. 8 & 657. Spach, Hist. Veg. 7. 278. Dietr. Syn. 3. 345. Torr. Fl. N. Y. 1. 6; Fremont's Rep. 87; Emory's Rep. 136 & 406. Loud. Arbor. 1. 237, **fig. 13.** Richards. Arct. Exped. 442. Gray, Pac. R. Rep.

12. 40; Manual, 36. Curtis, Bot. N. Car. 120. Parry, Pl. Minn. 608. Lesqx. Fl. Ark. 374. Chapman, 4. Lawson, Ranunc. Canad. 20.

C. fragrans. Salisb. Prodr. 371.

C. cordifolia. Moench, Suppl. 104.

C. cordata. Pursh, 384. DC. Prodr. 1. 4, excl. syn. Spreng. Syst. 2. 670. Don, Mill. 1. 5. Nees, Pl. Wied, 3.

C. Purshii. Dietr. Syn. 3. 345.

Var. **bracteata.** DC. Syst. 1. 142; Prodr. 1. 4. Don, Mill. 1. 5. Loud. Arbor. 1. 237.

C. bracteata. Moench, Suppl. 103.

COPTIS asplenifolia. Salisb. in Trans. Linn. Soc. 8. 306. Pursh, 391. Poir. Suppl. 5. 628. DC. Syst. 1. 322; Prodr. 1. 47. Spreng. Syst. 2. 659. Hook. Fl. Bor.-Am. 1. 23, **t. 11.** Bong. Sitch. 124. Nutt. in Jour. Acad. Philad. 7. 9. Ledeb. Fl. Ross. 1. 53. Torr. & Gray, Fl. 1. 28. Dietr. Syn. 3. 338. Gray, Proc. Am. Acad. 8. 375.

C. occidentalis. Torr. & Gray, Fl. 1. 28. Walp. Rep. 1. 49. Dietr. Syn. 3. 338. Hook. in Lond. Jour. Bot. 6. 67. Miquel, Ann. Mus. Bot. Lugd.-Bat. 3. 7. Torrey, Bot. Wilkes, 216.

Chrysocoptis occidentalis. Nutt. in Jour. Acad. Philad. 7. 9, **t. 1.**

C. trifolia. Salisb. in Trans. Linn. Soc. 8. 305. See syn. in DC. Syst. 1. 322. — Pursh, 390. Hornem. Fl. Dan. 9, **t. 1519.** Poir. Suppl. 5. 627. Lodd. Bot. Cab. **t. 173.** Bigel. Med. Bot. 1. 60, **t. 5.** Spreng. Syst. 2. 659. Raf. Med. Bot. 1. 127, **fig. 27.** E. Meyer, Pl. Lab. 97. Hook. Fl. Bor.-Am. 1. 23; Jour. Linn. Soc. 5. 82. Bong. Sitch. 123. Schlecht. in Linn. 6. 581 & 10. 104. Torr. & Gray, Fl. 1. 28. Spach, Hist. Veg. 7. 325. Lindl. Fl. Med. 8. Ledeb. Fl. Ross. 1. 52. Torrey, Fl. N. Y. 1. 18. Gray, Genera, 1. 38, **t. 13**; Manual, 45. Lange, Pl. Grönl. 129. Hook. f:, Arct. Pl. 284. Pl. Bourgeau, 254. Rothr. Fl. Alask. 442. Lawson, Ranunc. Canad. 45.

Helleborus trifolius. Linn. Amœn. 2. 355, **t. 4, fig. 18.** Hill, Veg. Syst. 24, **t. 13, fig. 2.** Ait. Hort. Kew. 2. 273. Willd. Spec. 2. 1338. Michx. Fl. 1. 325. Baillon, Hist. Pl. 1. 18, **fig. 34.**

Anemone Grœnlandica. Muell. Fl. Dan. 4, **t. 566.**

Helleborus trilobus. Lam. Dict. 3. 98.

Chrysa borealis. Raf. in N. Y. Med. Rep. 5. 350. Desv. in Journ. Bot. 2. 170.

DELPHINIUM azureum. Michx. Fl. 1. 314. Persoon, 2. 82. Poir. Suppl. 2. 458. Pursh, 371. Nutt. Gen. 2. 14. DC. Syst. 1. 356; Prodr. 1. 54. Deless. Icon. 1. 16, **t. 60.** Elliott, 2. 18. Torrey, Compend. 218; Ann. Lyc. N. Y. 2. 163; Nicol. Rep. 144; Emory's Rep. 406; Stansb. Rep. 383; Sitgr. Rep. 155; Marcy's Rep. 280; Mex. Bound. 30. Spreng. Syst. 2. 618. Don, Mill. 1. 53. Beck, Bot. 13. Lindl. Bot. Reg. 23, **t. 1999.** Torr. & Gray, Fl. 1. 32 & 660; Pac. R. Rep. 2. 125 & 159. Eat. & Wr. 221. Nees, Pl. Neuwied, 3. Dietr. Syn. 3. 280. Engelm. in Wisliz. Rep. 3. Gray, Pl. Fendl. 5; Pl. Lindh. 142; Pl. Wright. 2. 8; Pl. Thurb. 299; Pac. R. Rep. 12. 40; Manual, 46; Hall's Pl. Tex. 3. Parry, Pl. Minn. 609. Durand, Fl. Utah, 158. Chapman, 10. Pl. Bourgeau, 254. Lawson, Ranunc. Canad. 48. Porter, Hayd. Rep. 1871, 473; Fl. Col. 5. Parry, Am. Naturalist, 9. 268.

D. Carolinianum. Walter, 155. Bartr. Trav. 328.

D. virescens. Nutt. Gen. 2. 14. DC. Prodr. 1. 53. Schweinitz, Long's Exp. 2, Appx. 114. Spreng. Syst. 2. 618. Torrey, Ann. Lyc. N. Y. 2. 163. Don, Mill. 1. 52. Torr. & Gray, Fl. 1. 32. Eat. & Wr. 221. Dietr. Syn. 3. 278. Gray, Pl. Lindh. 142. Wood, Cl.-Book, 210.

D. vimineum. Don in Sweet's Brit. Fl. t. **374.** Hook. Bot. Mag. t. **3593.** Torr. & Gray, l. c. Eat. & Wr. 222. Walp. Rep. 1. 55. Dietr. l. c. Young,Fl. Tex. 146.
D. simplex. Gray, Pl. Wright. 2. 8.

D. bicolor. Nutt. in Journ. Acad. Philad. 7. 10. Torr. & Gray, Fl. 1. 33. Eat. & Wr. 221. Walp. Rep. 1. 56. Dietr. Syn. 3. 278. Brew. & Wats. Bot. Calif. 1. 11.
D. Menziesii. Durand, Fl. Utah, 158. Gray, Proc. Acad. Philad. 1863, 57. Porter, Hayd. Rep. 1871, 477; Fl. Col. 5. Coulter, Hayd. Rep. 1872, 759.
D. Menziesii, var. *Utahense.* Watson, King's Rep. 5. 12.

D. Californicum. Torr. & Gray, Fl. 1. 31. Eat. & Wr. 222. Walp. Rep. 1. 55. Dietr. Syn. 3. 279. Benth. Pl. Hartw. 296. Gray, Pl. Wright. 2. 9. Torrey, Mex. Bound. 30. Boland. Cat. 4. Brew. & Wats. Bot. Calif. 1. 11.
D. exaltatum. Hook. & Arn. Bot. Beechey, 317, not Ait.

D. cardinale. Hook. Bot. Mag. t. **4887.** Torrey, Pac. R. Rep. 4. 62; Mex. Bound. 30, t. **2.** Walp. Ann. 4. 24. Lemaire, L'Ill. Hort. 3, t. **92.** Regel, Gart. Fl. 6, t. **208.** Fl. des Serres, 11. 63, t. **1105.** Thompson in "Garden," 3. 477 & 12. 176. Brew. & Wats. Bot. Calif. 1. 12.
D. coccineum. Torrey, Pac. R. Rep. 4. 62.

D. decorum. Fisch. & Mey. Ind. Sem. Petr. 3. 33 (Litt.-Ber. zu Linn. 1838, 92). Torr. & Gray, Fl. 1. 661. Walp. Rep. 1. 56. Dietr. Syn. 3. 279. Gray, Pl. Wright. 2. 8; Ives' Rep. 5. Durand, Pl. Pratten. 80. Torrey, Pac. R. Rep. 4. 63 & 7. 7; Mex. Bound. 30. Newberry, Pac. R. Rep. 6. 65. Boland. Cat. 4. Brew. & Wats. l. c. 11.
D. patens. Benth. Pl. Hartw. 296. Walp. Ann. 2. 12. Torrey, Pac. R. Rep. 4. 63; Mex. Bound. 30. Gray, Ives' Rep. 5. Boland. Cat. 4.
D. Menziesii. Torr. Mex. Bound. 30? Gray, Proc. Bost. Soc. 7. 145. Bol. l. c.

Var. Nevadense. Watson, Bot. Calif. 1. 11.
D. Menziesii. Durand, Pl. Pratten. 80. Watson, King's Rep. 5. 11, excl. var.
D. decorum. Anderson, Cat. Pl. Nev. 117, in part.

D. depauperatum. Nutt.; Torr. & Gray, Fl. 1. 33. Eat. & Wr. 221. Walp. Rep. 1. 56. Dietr. Syn. 3. 278. Watson, King's Rep. 5. 12. Brew. & Wats. l. c.
D. Menziesii. Torr. & Gray, Pac. R. Rep. 2. 119.
? *D. decorum.* Anderson, Cat. Pl. Nev. 117, in part.

D. exaltatum. Ait. Hort. Kew. 2. 244. Willd. Spec. 2. 1230. Persoon, 2. 82. Pursh, 371. DC. Syst. 1. 357; Prodr. 1. 54. Elliott, 2. 19. Torrey, Compend. 218. Spreng. Syst. 2. 618. Don, Mill. 1. 53. Beck, Bot. 13. Torr. & Gray, Fl. 1. 31. Eat. & Wr. 221. Dietr. l. c. Gray, Pl. Wright. 2. 9; Manual, 46. Chapman, 10.
D. urceolatum. Jacq. Icon. Rar. 1, t. **101**; Collect. 1. 153. Willd. Spec. 2. 1230. Ait. f. Hort. Kew. 3. 321. Poir. Suppl. 2. 457. Hook. Bot. Mag. t. **1791.** Spreng. Syst. 2. 619. Don, Mill. 1. 53.
D. tridactylum. Michx. Fl. 1. 314. Persoon, 2. 82. Poir. Suppl. 2. 458.

D. Menziesii. DC. Syst. 1. 355; Prodr. 1. 54. Spreng. Syst. 2. 618. Lindl. Bot. Reg. 14, t. **1192.** Hook. Fl. Bor.-Am. 1. 25; Lond. Journ. Bot. 6. 67. Don, Mill. 1. 52. Torr. & Gray, Fl. 1. 661. Hook. & Arn. Bot. Beechey, 121 & 317. Ledeb. Fl. Ross. 1. 62. Seem. Bot. Herald, 23. Newberry, Pac. R. Rep. 6. 65. Cooper, same, 12. 55. Torrey, Mex. Bound. 30; Bot. Wilkes, 216. Gray, Proc. Am. Acad. 8. 375. Hook. f. Arct. Pl. 284 & 313. Rothr. Fl. Alask. 442. Porter, Hayd. Rep. 1871, 477; Fl. Col. 5. Coulter, Hayd. Rep. 1872, 759. Brew. & Wats. l. c.
D. pauciflorum. Nutt.; Torr. & Gray, Fl. 1. 33. & 661. Eat. & Wr. 221. Walp. l. c.
D. Nuttallianum. Pritz.; Walp. Rep. 2. 744.
? *D. Middendorffii.* Trautv. in Middend. Sibir. Reis. 63, t. **1.** Walp. Rep. 1. 13.
D. patens. Newberry, Pac. R. Rep. 6. 65.

D. nudicaule. Torr. & Gray, Fl. 1. 33 & 661. Eat. & Wr. 222. Walp. Rep. 1. 56. Dietr. Syn. 3. 278 (as *D. radicale*). Torrey, Pac. R. Rep. 4. 62; Mex. Bound. 30. Newberry, Pac. R. Rep. 6. 65. Hook. f. Bot. Mag. **t. 5819.** Gray, Am. Journ. Sci. 3. 2. 63. Moore, Fl. Mag. **t. 512.** Boland. Cat. 4. Thompson, Garden, 3. 477. Dickson, Trim. Journ. Bot. 10. 45. Brew. & Wats. Bot. Calif. 1. 12.

Var. **elatius.** Gray; Thompson, Garden, 3. 477. Brew. & Wats. l. c.

D. sarcophyllum. Hook. & Arn. Bot. Beechey, 317.

D. scopulorum. Gray, Pl. Wright. 2. 9; Am. Journ. Sci. 2. 33. 242; Proc. Acad. Philad. 1863, 57. Walp. Ann. 4. 24. Torrey, Pac. R. Rep. 4. 63; Mex. Bound. 30. Coulter, Hayd. Rep. 1872, 759. Porter, Fl. Col. 5. Brew. & Wats. l. c. 11.

D. exaltatum. Hook. Fl. Bor.-Am. 1. 25. Lawson, Ranunc. Canad. 47.

D. simplex. Dougl.; Hook. Fl. Bor.-Am. 1. 25; Lond. Journ. Bot. 6. 67. Don, Mill. 1. 53. Hook. & Arn. Bot. Beechey, 317. Eat. & Wr. 221. Benth. Pl. Hartw. 295. Durand, Pl. Pratten. 80. Torrey, Pac. R. Rep. 4. 63; Bot. Wilkes, 217. Cooper, Pac. R. Rep. 12. 51. Boland. Cat. 4. Brew. & Wats. l. c. 10.

D. Menziesii. Torr. & Gray, Fl. 1. 31, not DC. Dietr. Syn. 3. 279.

D. azureum, var. Torr. & Gray, Fl. 1. 660. Hook. & Arn. Bot. Beechey, 317. Benth. Pl. Hartw. 296. Torrey, Pac. R. Rep. 4. 63.

D. azureum. Newberry, Pac. R. Rep. 6. 65. Cooper, same, 12. 55. Torrey, Bot. Wilkes, 217.

D. tricorne. Michx. Fl. 1. 314. Persoon, 2. 82. Poir. Suppl. 2. 458. Pursh, 371. DC. Syst. 1. 356; Prodr. 1. 54. Lodd. Bot. Cab. **t. 306.** Deless. Icon. Sel. 1. 16, **t. 59.** Elliott, 2. 18. Spreng. Syst. 2. 618. Beck, in Am. Journ. Sci. 14. 114. Don, Mill. 1. 52. Torr. & Gray, Fl. 1. 31. Eat. & Wr. 222. Dietr. Syn. 3. 279. Gray, Genera, 1. 42, **t. 15**; Pac. R. Rep. 12. 40; Manual, 46. Lindl. Veg. Kingd. 426, **f. 297.** Chapman, 10.

D. trolliifolium. Gray, Proc. Am. Acad. 8. 375. Brew. & Wats. l. c. 11.

D. elatum, var. Gray, Am. Jour. Sci. 2. 33. 242; Proc. Acad. Philad. 1863, 57.

D. elatum. Porter, Hayd. Rep. 1870, 473.

D. elatum, var. (?) *occidentale.* Watson, King's Rep. 5. 11. Porter, Hayd. Rep. 1871, 477; Fl. Col. 4. Coulter, Hayd. Rep. 1872, 759. Brew. & Wats. l. c.

D. variegatum. Torr. & Gray, Fl. 1. 9. Eat. & Wr. 222. Walp. Rep. 1. 55. Dietr. l. c. Torrey, Pac. R. Rep. 4. 63. Boland. Cat. 4. Brew. & Wats. l. c. 10.

D. grandiflorum, var. *variegatum.* Hook. & Arn. Bot. Beechey, 317.

D. decorum. Benth. Pl. Hartw. 295.

HELLEBORUS VIRIDIS, Linn. Torr. & Gray, Fl. 1. 659. Gray, Manual, 45.

HYDRASTIS Canadensis. Linn. Spec. 2 ed. 784. Lam. Dict. 3. 151. Ait. Hort. Kew. 2. 273. Willd. Spec. 2. 1339. Michx. Fl. 1. 317. St. Hil. Fam. Nat. 1. 486. Persoon, 2. 107. Pursh, 389. DC. Syst. 1. 218; Prodr. 123. Elliott, 2. 55. James, Catalogue, 183. Barton, Comp. Fl. Phil. 2. 22. Torrey, Compend. 224; Ann. Lyc. N. Y. 2. 162; Fl. N. Y. 1. 26. Spreng. Syst. 4². 220. "Pict. Hort. Par. 37, **t. 17.**" Raf. Med. Fl. 1. 251, **fig. 51.** Hook. Fl. Bor.-Am. 1. 9; Bot. Mag. **t. 3019** & **3232.** Don, Mill. 1. 22, **fig. 7.** Beck, Bot. 7. Darling. Fl. Cestr. 336. Torr. & Gray, Fl. 1. 40. Spach, Hist. Veg. 7. 384. Eat. & Wr. 276. Lindl. Fl. Med. 3. Nees, Pl. Neuwied, 3. Dietr. Syn. 3. 338. Gray, Genera, 1. 48, **t. 18**; Manual, 47. Chapman, 11. Baillon, Hist. Pl. 1. 51, **fig. 88.** Lawson, Ranunc. Canad. 51.

ISOPYRUM biternatum. Torr. & Gray, Fl. 1. 660. Walp. Rep. 1. 48. Torrey, Nicol. Rep. 144. Gray, Genera, 1. 36, **t. 12**; Manual, 44. Parry, Pl. Minn. 609. Chapman, 9. Baillon, Hist. Pl. 1. 21, **fig. 36.** Young, Fl. Tex. 145.

Enemion biternatum. Raf. in "Jour. Phys. 2. 70." DC. Prodr. 1. 48. Don, Mill. 1. 47. Torr. & Gray, Fl. 1. 29. Dietr. Syn. 3. 338. Regel, Fl. Ost-Sib. 1. 62.

I. thalictroides. Short, Cat. Pl. Kentucky, 1. 8. Hook. Jour. Bot. 1. 187.

I. Hallii. Gray, Proc. Am. Acad. 8. 374.

I. occidentale. Hook. & Arn. Bot. Beechey, 816. Torr. & Gray, Fl. 1. 660.

MYOSURUS aristatus. Benth. Lond. Jour. Bot. 6. 458. Walp. Ann. 1. 7. Gray, Ives's Rep. 5. Watson, King's Rep. 5. 5. Coulter, Hayd. Rep. 1872, 758.

M. apetalus. Gay, Hist. Chil. Bot. 1. 31, **t. 1, fig. 1.** Baillon, Hist. Pl. 1. 43.

M. minimus. Linn. Spec. 284. See syn. in DC. Syst. 1. 230; Ledeb. Fl. Ross. 1. 26. — Elliott, 1. 582. Torr. & Gray, Fl. 1. 25; Pac. R. Rep. 2. 159. Hook. in Jour. Bot. 1. 187; Lond. Jour. Bot. 6. 459. Benth. Pl. Hartw. 295. Gray, Genera, 1. 28, **t. 8**; Pl. Wright. 2. 8; Proc. Acad. Philad. 1863, 57; Manual, 44. Torrey, Mex. Bound. 29; Bot. Wilkes, 215. Chapman, 6. Baillon, Hist. Pl. 1. 41, **fig. 71–75.** Lawson, Ranunc. Canad. 43. Boland. Cat. 3. Anderson, Cat. Pl. Nev. 117. Watson, King's Rep. 5. 5. Porter, Fl. Col. 2.

M. Shortii. Raf. in Am. Jour. Sci. 1. 379 (Spreng. Neue Entdeck. 2. 208). DC. Prodr. 1. 25. Don, Mill. 1. 25.

PÆONIA Brownii. Dougl.; Hook. Fl. Bor.-Am. 1. 27. Don, Mill. 1. 66. Torr. & Gray, Fl. 1. 41 & 661. Lindl. Bot. Reg. 25, **t. 30.** Walp. Rep. 1. 61. Dietr. Syn. 3. 275. Benth. Pl. Hartw. 296. Torrey, Pac. R. Rep. 4. 63 & 7. 7; Mex. Bound. 30; Bot. Wilkes, 217. Newberry, Pac. R. Rep. 6. 66. Kellogg, Proc. Calif. Acad. 1. 46. Anderson, Cat. Pl. Nev. 117. Watson, King's Rep. 5. 12. Coulter, Hayd. Rep. 1872, 759. Brew. & Wats. Bot. Calif. 1. 13.

P. Californica. Nutt. in Torr. & Gray, Fl. 1. 41. Walp. Rep. 1. 61. Dietr. Syn. 3. 275. Kellogg, Proc. Calif. Acad. 1. 46.

RANUNCULUS abortivus. Linn. Spec. 551. Hill, Veg. Syst. 13. 2, **t. 2, fig. 4.** Walt. Fl. Car. 159. Willd. Spec. 2. 1314. Poir. Dict. 6. 109. Pursh, 392. Smith, Rees Cyc. n. 23. DC. Syst. 1. 268; Prodr. 1. 34. Schlecht. Animad. 2. 10. Elliott, 2. 58. Hook. Fl. Bor.-Am. 1. 14, in part; Jour. Bot. 1. 187. Don, Mill. 1. 82. Torr. & Gray, Fl. 1. 19. Dietr. Syn. 3. 317. Torrey, Fl. N. Y. 1. 13; Nicol. Rep. 144. Parry, Pl. Minn. 608. Gray, Pac. R. Rep. 12. 40; Manual, 42. Chapman, 7. Pl. Bourgeau, 254. Lawson, Ranunc. Canad. 37.

? *R. nitidus.* Walt. Fl. Car. 159, not Muhl. or Elliott. Poir. Dict. 6. 126. Pursh, 392.

Var. **micranthus.** Gray, Manual, 42. Macoun & Gibson, Trans. Edinb. 12. 308.

R. micranthus. Nutt. in Torr. & Gray, Fl. 1. 18. Walp. Rep. 1. 42. Dietr. Syn. 3. 318. Engelm. in Am. Journ. Sci. 40. 94.

R. ACRIS, Linn. Generally regarded as introduced, but classed by Hook. f. as indigenous. Hook. Fl. Bor.-Am. 1. 18; Lond. Jour. Bot. 6. 66. Torr. & Gray, Fl. 1. 21, excl. var. Ledeb. Fl. Ross. 1. 40. Vahl, Fl. Dan. 14, **t. 2415.** Torrey, Emory's Rep. 406. Hook. f., Arct. Pl. 283. Gray, Manual, 43. Lange, Pl. Grönl. 128. Lawson, Ranunc. Canad. 36. Boland. Cat. 3.

R. adoneus. Gray, Proc. Acad. Philad. 1863, 56. Coulter, Hayd. Rep. 1872, 759. Porter, Fl. Col. 8.

R. amœnus ? Gray, Am. Jour. Sci. 2. 33. 408.

R. orthorhynchus, var. *alpinus.* Watson, King's Rep. 5. 9. Gray, Am. Jour. Sci. 8. 8. 349; Proc. Am. Acad. 8. 373.

R. affinis. R. Br. in Parry's 1st Voy. Appx. 265 (Beil. zu Flora, 72. 70). Richards. in Frankl. Journ. 2 ed. 28. Hook. in Parry's 2d Voy. 384; Fl. Bor.-Am. 1.

12, t. 6, fig. A. Seringe, Melange Bot. 2. 57. Grah. in Edinb. Jour. 1829, 187. Don, Mill. 1. 35. Schlecht. in Linn. 6. 577. Torr. & Gray, Fl. 1. 18. Hook. & Arn. Bot. Beechey, 121. Ledeb. Fl. Ross. 1. 37. Dietr. Syn. 3. 320. Gray, Pl. Fendl. 4; Pl. Wright. 2. 8; Am. Jour. Sci. 2. 33.241 & 404. Seem. Bot. Herald, 22. Torrey, Pac. R. Rep. 4. 62; Mex. Bound. 29. Hook. f. in Jour. Linn. Soc. 1. 120; Arct. Pl. 312 (referring it "to *R. auricomus* without hesitation"). Watson, King's Rep. 5. 7. Porter, Hayd. Rep. 1870, 472. Coulter, same, 1872, 759.

R. pedatifidus. Schlecht. Animad. 2. 18, not Sm. or Ledeb.

R. arcticus. Richards. in Frankl. Journ. 13. Don, Mill. 1. 34. Thus referred by Hook. f., l. c.; kept distinct by Malmgren, Fl. Spitz. in Seem. Jour. Bot. 2. 136.

R. amœnus. Ledeb. Fl. Alt. 320; Icon. Fl. Alt. t. 113. The Siberian form, referred here by Ledeb. (Fl. Ross. 1. 37) and others. Hook. f. & Thomp. (Fl. Ind. 1. 34) identify the next with it.

R. pedatifidus. Smith, Rees Cyc. n. 32. DC. Syst. 1. 275; Prodr. 1. 36. (Not of Ledeb. Fl. Ross. 1. 732, which Hook. f. & Thomp. l. c. refer to *R. cæspitosus*, Wall., as a distinct species common to Asia and North America.)

R. auricomus, var. *affinis.* Lawson, Ranunc. Canad. 37.

Var. **cardiophyllus.** Gray, Proc. Acad. Philad. 1863, 56. Porter, Fl. Col. 8.

R. cardiophyllus. Hook. Fl. Bor.-Am. 1. 14, t. 5; Bot. Mag. t. 2999. Don, Mill. 1. 33. Nutt. in Jour. Acad. Philad. 7. 8. Torr. & Gray, Fl. 1. 18. Walp. Rep. 1. 42. Dietr. Syn. 3. 317. Pl. Bourgeau, 254.

Var. **leiocarpus.** Trautv. in Middend. Sibir. Reise, 62. Regel, Fl. Ost-Sib. 1. 46. Gray, Proc. Acad. Philad. 1863, 56. Watson, King's Rep. 5. 8. Porter, Fl. Col. 8.

R. Eschscholtzii. Gray, Am. Jour. Sci. 2. 33. 241, in part.

Var. **lasiocarpus.** Torrey, Bot. Wilkes, 213.

R. alismæfolius. Geyer; Benth. Pl. Hartw. 295, excl. syn. Gray, Proc. Am. Acad. 8. 372. Brew. & Wats. Bot. Calif. 1. 16.

R. alismæfolius, var. Cooper, Pac. R. Rep. 12. 51. Gray, Am. Journ. Sci. 2. 33. 404; Proc. Acad. Philad. 1863, 57.

R. glaberrimus, var. Gray, Am. Journ. Sci. 2. 33. 241.

R. alismæfolius, var. *montanus.* Watson, King's Rep. 5. 7. Gray, Am. Journ. Sci. 3. 3. 149. Porter, Fl. Col. 2.

R. ambigens.

R. Flammula. Pursh, 391; not DC. Richards. in Frankl. Journ. 13. Hook. Fl. Bor.-Am. 1. 11, in part. Torr. & Gray, Fl. 1. 16. Torrey, Fl. N. Y. 1. 11. Gray, Manual, 1 ed. 8. Lawson, Ranunc. Canad. 40. Wood, Bot. & Fl. 19.

R. Lingua. Pursh, 391. Torrey, Compend. 225. Don, Mill. 1. 31, in part.

? *R. Robini.* Raf. Fl. Lud. 82. Seringe, Melange Bot. 70.

R. alismæfolius. Benth. l. c., in part. Gray, Manual, 41 (2 ed. 8). Chapman, 7.

R. Andersoni. Gray, Proc. Am. Acad. 7. 327. Anderson, Cat. Fl. Nev. 117. Watson, King's Rep. 5. 6, t. 1. Brew. & Wats. Bot. Calif. 1. 6.

R. aquatilis, Linn. See syn. in DC. Syst. 1. 234 & Prodr. 1. 26; Schlecht. Animad. 1. 7 & 2. 5; Ledeb. Fl. Ross. 1. 27; Babington, Ann. & Mag. Nat. Hist. 1. 3. 227 & 2. 16. 385; Robinson, Trans. Bot. Soc. Edinb. 11. 121; Du Mortier, Bull. Bot. Soc. Belg. 2. 207, under *Batrachium*; Hiern, Seem. Journ. Bot. 9. 65, under *R. hydrocharis.* — Pursh, 395. Hook. Fl. Bor.-Am. 1. 10. Schlecht. in Linn. 6. 576. Torr. & Gray, Fl. 1. 15. Torrey, Fl. N. Y. 1. 11; Emory's Rep. 136 & 406; Pac. R. Rep. 4. 62; Bot. Wilkes, 213. Ascherson, Fl. Lab. in Flora, 43. 369. Parry, Pl. Minn.

608. Newberry, Pac. R. Rep. 6. 65. Hook. f., Arct. Pl. 283 & 311. Chapman, 7. Pl. Bourgeau, 254. Lawson, Ranunc. Canad. 42. Boland. Cat. 3.

Var. **arcticus**. Durand, Pl. Kane, 185.

Var. **cæspitosus**. DC. Prodr. 1. 26. Hook. Fl. Bor.-Am. 1. 10; Lond. Jour. Bot. 6. 66. Torr. & Gray, Fl. 1. 16. Brew. & Wats. Bot. Calif. 1. 5.

R. hydrocharis cæspitosus. Hiern, l. c. 100.

Var. **heterophyllus**. DC. Prodr. 1. 26. Hook. Fl. Bor.-Am. 1. 10. Cooper, Pac. R. Rep. 12. 55. Gray, Manual, 40. Wood, Bot. & Fl. 19.

R. heterophyllus, Weber. Gray, Proc. Am. Acad. 8. 372.

Var. **Lobbii**.

R. hederaceus. Schlecht. Animad. Ranunc. 1. 7. Torrey, Pac. R. Rep. 4. 62.

R. hydrocharis Lobbii. Hiern, l. c. 66, t. **114**.

Var. **stagnatilis**. DC. Prodr. 1. 27. Hook. Fl. Bor.-Am. 1. 10. Torr. & Gray, Fl. 1. 16. Watson, King's Rep. 5. 6. Porter, Hayd. Rep. 1871, 477; Fl. Col. 2. Coulter, Hayd. Rep. 759.

R. aquatilis, var. *divaricatus*. Gray, Manual, 2 ed. 7. Torrey, Mex. Bound. 29.

R. divaricatus. Gray, Pl. Wright. 2. 8; Pac. R. Rep. 12. 40; Manual, 40. Torr. & Gray, Pac. R. Rep. 2. 125. Torrey, Pac. R. Rep. 4. 62. Porter, Hayd. Rep. 1870, 472.

R. hydrocharis longirostris. Hiern, l. c. 100.

Var. **trichophyllus**. Gray, Manual, 40. Watson, King's Rep. 5. 5. Porter, Hayd. Rep. 1871, 477; Fl. Col. 2. Coulter, Hayd. Rep. 1872, 759.

R. fluviatilis. Pursh, 395. James, Long's Exp. 1. 63. Bigel. Fl. Bost. 2 ed. 227.

R. aquatilis, var. *capillaceus*. DC. Prodr. 1. 26. Torrey, Compend. 225; Nicol. Rep. 144. Schlecht. in Linn. 6. 576. Hook. Fl. Bor.-Am. 1. 10. Darling. Fl. Cestr. 327. Torr. & Gray, Fl. 1. 10.

R. pantothrix. Elliott, 2. 56.

R. aquatilis, var. *brachypus*. Hook. & Arn. Bot. Beechey, 316. Torr. & Gray, Fl. 1. 658.

R. aquatilis, var. *pantothrix*. Ledeb. Fl. Ross. 1. 27. Hook. f., Arct. Pl. 311.

R. hydrocharis trichophyllus. Hiern, l. c. 101.

Var. **confervoides**.

Batrachium confervoides, Fries. Lange, Pl. Grönl. 128.

R. hydrocharis confervoides. Hiern, l. c. 102.

Besides these, the following American forms are given by Hiern:

R. hydrocharis hederæfolius, l. c. 67.

Drouetii, l. c. 102. (Oregon.)

submersus, l. c. 102. (Boston.)

R. auricomus, Linn. See syn. in DC. Syst. 1. 266; Schlecht. Animad. 2. 7; Ledeb. Fl. Ross. 1. 38; Regel & Til. Fl. Ajan. 31; Regel, Fl. Ost-Sib. 1. 47; Trautvetter in Trud. St. Pet. Bot. Cada, 1. 49. — Pursh, 393. DC. Prodr. 1. 33. Hook. in Trans. Linn. Soc. 14. 361. Torr. & Gray, Fl. 1. 17. Hook. f., Arct. Pl. 283 & 312.

Var. **affinis**. Lawson, Ranunc. Canad. 37.

R. affinis, R. Br.; q. v.

R. Cassubicus, Linn. Schrank, Fl. Lab. 28. Schlecht. Animad. 2. 7. Ledeb. Fl. Ross. 1. 38. Dietr. Syn. 3. 317.

R. auricomus, var. *Cassubicus*, Hagen. Meyer, Pl. Lab. 96.

R. BULBOSUS, Linn. Michx. Fl. 1. 321. Pursh, 392. Bigel. Med. Fl. 3. 61, **t. 47.** Torr. & Gray, Fl. 1. 24. Chapman, 8. Gray, Manual, 43.

R. Californicus. Benth. Pl. Hartw. 295. Torrey, Pac. R. Rep. 4. 62 & 7. 7; Mex. Bound. 30. Newberry, Pac. R. Rep. 6. 65. Boland. Cat. 3. Gray, Proc. Am. Acad. 8. 372. Brew. & Wats. Bot. Calif. 1. 7.

R. dissectus. Hook. & Arn Bot. Beechey, 316, not Bieb. Walp. Rep. 1. 43. Peyritsh in Linn. 30. 52.

R. acris, var. *β.* Torr. & Gray, Fl. 1. 21.

R. delphinifolius ? Torr. & Gray, Fl. 1. 659, not HBK.

R. canus. Torrey, Pac. R. Rep. 4. 62, not Benth.

R fascicularis. Watson, King's Rep. 5. 9 ?

R. Cymbalaria. Pursh, 392. Smith, Rees Cycl. n. 14. Poir. Suppl. 4. 661. DC. Syst. 1. 252; Prodr. 1. 33. Schlecht. Animad. 1. 22. Richards. in Frankl. Journ. 13. Spreng. Syst. 2. 649. Hook. Fl. Bor.-Am. 1. 11; Lond. Jour. Bot. 6. 60. Don, Mill. 1. 32. Torr. & Gray, Fl. 1. 17. Hornem. Fl. Dan. 13, **t. 2293.** Ledeb. Fl. Ross. 1. 34. Turcz. Cat. Baic. n. 34. Dietr. Syn. 3. 316. Torrey, Fl. N. Y. 1. 12; Nicol. Rep. 144; Frem. Rep. 87; Mex. Bound. 29. Gray, Pl. Wright. 2. 8; Am. Jour. Sci. 2. 33. 241; Proc. Acad. Philad. 1863, 56; Manual, 41; Proc. Am. Acad. 8. 372. Walp. Ann. 4. 18. Parry, Pl. Minn. 608. Lange, Pl. Grönl. 129. Hook. f., Arct. Pl. 283. Pl. Bourgeau, 254. Lawson, Ranunc. Canad. 40. Anderson, Cat. Pl. Nev. 117. Watson, King's Rep. 5. 7. Porter, Hayd. Rep. 1870, 472; 1871, 477; Fl. Col. 3. Coulter, Hayd. Rep. 1872, 759.

R. tridentatus. HBK. Nov. Gen. & Spec. 5. 42. DC. Syst. 1. 252; Prodr. 1. 33. Seringe, "Bull. Bot. 2. 25, **t. 3.**" Spreng. Syst. 2. 649. Don, Mill. 1. 32. Benth. Pl. Hartw. 1 & 158. Dietr. Syn. 3. 317. Gray, Pl. Fendl. 4.

R. sarmentosus. Adams, Mem. Soc. Mosc. 9. 244.

R. salsuginosus. Pallas, "Itin. 2. 213 & 265." Willd. Spec. 2. 1311. Smith, Rees Cycl. n. 15. Poir. Dict. 6. 102. Spreng. Syst. 2. 649.

Var. **alpinus.** Hook. Fl. Bor.-Am. 1. 11.

R. halophilus. Schlecht. Animad. 1. 23, **t. 4, fig. 1.** Seringe, Melange Bot. 2. 57. Spreng. Syst. 2. 649. Don, Mill. 1. 32.

R. digitatus. Hook. Jour. Bot. 1851, 124, **t. 4.** Walp. Ann. 4. 17. Lawson, Ranunc. Canad. 43. Watson, King's Rep. 5. 8.

R. fascicularis. Muhl.; Bigel. Fl. Bost. 137. DC. Syst. 1. 291; Prodr. 1. 40. Spreng. Syst. 2. 655. Hook. Fl. Bor.-Am. 1. 20, **t. 8, fig. 1;** Jour. Bot. 1. 187. Don, Mill. 1. 38. Darling. Fl. Cestr. 329. Torr. & Gray, Fl. 1. 24. Dietr. Syn. 3. 324. Torrey, Fl. N. Y. 1. 15. Gray, Genera, 1. 30, **t. 9;** Manual, 43; Am. Jour. Sci. 3. 3. 149; Proc. Am. Acad. 8. 373. Parry, Pl. Minn. 608. Lawson, Ranunc. Canad. 34.

R. Ficaria, Linn. Included in Hook. f. Arct. Pl. as from northwestern America, but no other authority is found.

R. Flammula, Linn. See syn. in DC. Syst. 1. 247; Ledeb. Fl. Ross. 1. 32. — Hook. in Lond. Jour. Bot. 6. 66. Hook. f., Arct. Pl. 283 & 312. Torrey, Bot. Wilkes, 213. Gray, Proc. Am. Acad. 8. 373.

Var. **intermedius.** Hook. Fl. Bor.-Am. 1. 11. Ledeb. Fl. Ross. 1. 32. Gray, Manual, 41; Proc. Am. Acad. 8. 373.

R. Flammula. Schlecht. in Linn. 6. 577.

Var. **Unalaschcensis.** Ledeb. Fl. Ross. 1. 32.

Var. **reptans.** Meyer, Pl. Lab. 96. Gray, Proc. Acad. Philad. 1863, 56; Manual,

41. Watson, King's Rep. 5. 7. Porter, Hayd. Rep. 1871, 477; Fl. Col. 2. Coulter, Hayd. Rep. 1872, 759. Brew. & Wats. Bot. Calif. 1. 6.

R. reptans. Linn. Spec. 549. See syn. in DC. Syst. 1. 248; Ledeb. Fl. Ross. 1. 32 — Schlecht. Animad. 1. 18. Don, Mill. 1. 31. Torr. & Gray, Fl. 1. 16. Hook. in Lond. Jour. Bot. 6. 66. Gray, Manual, 1 ed. 9. Cooper, Pac. R. Rep. 12. 55. Lange, Pl. Grönl. 129. Pl. Bourgeau, 254. Lawson, Ranunc. Canad. 40. Boland. Cat. 3. Wood, Bot. & Fl. 19.

R. filiformis. Michx. Fl. 1. 320. Poir. Dict. 6. 99. Persoon, 2. 102. Pursh, 372. Smith, Rees Cyc. n. 5. Barton, Fl. N. A. 2. 101, **t. 70.** Bigel. Fl. Bost. 2 ed. 224.

R. Flammula, var. *filiformis.* Hook. Fl. Bor.-Am. 1. 11. Regel, Fl. Ussur. 6.

R. reptans, var. *filiformis.* DC. Syst. 1. 248. Torrey, Fl. N. Y. 1. 12.

R. glaberrimus. Hook. Fl. Bor.-Am. 1. 12, **t. 5, fig. A.** Don, Mill. 1. 33. Nuttall, Jour. Acad. Philad. 7. 7. Torr. & Gray, Fl. 1. 19 & 658. Hook. & Arn. Bot. Beechey, 316. Walp. Rep. 1. 42. Dietr. Syn. 3. 317. Anderson, Cat. Pl. Nev. 117. Watson, King's Rep. 5. 8. Porter, Fl. Col. 2. Torrey, Bot. Wilkes, 214. Brew. & Wats. Bot. Calif. 1. 7.

R. glacialis, Linn. See syn. in DC. Syst. 1. 238. — Schlecht. Animad. 1. 12. Torr. & Gray, Fl. 1. 16 & 658. Hook. in Trans. Linn. Soc. 14. 362. Hook. f. Arct. Pl. 283 & 311. Durand, Pl. Kane, 185.

R. Chamissonis. Schlecht. Animad. 1. 12, **t. 1** (Spreng. Neue Entdeck. 2. 313). Seringe, Melange Bot. 2. 52. Spreng. Syst. 2. 650. Gray, Proc. Am. Acad. 7. 328.

R. hebecarpus. Hook. & Arn. Bot. Beechey, 316. Walp. Rep. 1. 43. Torrey, Pac. R. Rep. 4. 62; Mex. Bound. 30. Boland. Cat. 3.

R. parviflorus, var. γ. Torr. & Gray, Fl. 1. 25 & 659.

R. Hookeri. Regel, Fl. Ost-Sib. 1. 47.

R. pedatifidus. Hook. Fl. Bor.-Am. 1. 18, **t. 18, fig. B.** Don, Mill. 1. 35. Torr. & Gray, Fl. 1. 21. Dietr. Syn. 3. 321.

R. hydrocharoides. Gray, Pl. Thurb. 306. Walp. Ann. 4. 17. Torrey, Mex. Bound. 29.

R. Hornemanni. Schlecht. Animad. 2. 36. DC. Prodr. 1. 44. Don, Mill. 1. 41. Torr. & Gray, Fl. 1. 35. Dietr. Syn. 3. 327.

R. tuberosus. Hornem. Hort. Bot. Hafn. 527.

R. hyperboreus. Rottb. Act. Hafn. 10. 458, **t. 4, fig. 16.** See syn. in DC. Syst. 1. 272; Ledeb. Fl. Ross. 1. 34; Regel, Fl. Ost-Sib. 1. 43. — DC. Prodr. 1. 35. Schlecht. Animad. 2. 12. R. Br. in Parry's 1st Voy. Appx. 263. Hook. in Parry's 2d Voy. Appx. 4, & 3d Voy. Appx. 29; Fl. Bor.-Am. 1. 16. Spreng. Syst. 2. 650. Schlecht. in Linn. 6. 578. Torr. & Gray, Fl. 1. 20. Walp. Ann. 4. 19. Seem. Bot. Herald, 23. Lange, Pl. Grönl. 129. Hook. f., Jour. Linn. Soc. 1. 124 & 5. 82; Arct. Pl. 283 & 312. Dickie, Jour. Linn. Soc. 3. 110. Rothr. Fl. Alaska, 442.

Var. **natans.** Regel, l. c. Gray, Proc. Acad. Philad. 1863, 56. Porter, Fl. Col. 3.

R. natans. C. A. Meyer, in Ledeb. Fl. Alt. 2. 315 & Ic. Fl. Alt. **t. 114.** Referred to *R. radicans* by Schlecht. l. c. and by Hook. f. & Thomp., Fl. Ind.. 32.

R. hystriculus. Gray, Proc. Am. Acad. 7. 328.

R. Lapponicus, Linn. See syn. in DC. Syst. 1. 271. — Schlecht. Animad. 2. 11; Linn. 6. 578. Richards. in Frankl. Journ. 14. Hook. in Parry's 3d Voy. Appx. 121; Fl. Bor.-Am. 1. 16. Hook. & Arn. Bot. Beechey, 121. Hornem. Fl. Dan. 13,

t. 2292. Ledeb. Fl. Ross. 1. 36. Seem. Bot. Herald, 23. Lange, Pl. Grönl. 129. Aschers. Fl. Lab. in Flora, 43. 369. Rothr. Fl. Alaska, 442.

R. macranthus. Scheele in Linn. 21. 585. Torrey, Mex. Bound. 29. Watson, King's Rep. 5. 9. Coulter, Hayd. Rep. 1872, 759.

R. repens, var. *macranthus*. Gray, Pl. Lindh. 141; Pl. Wright. 1. 7, & 2. 8.

R. multifidus. Pursh, 736. Poir. Suppl. 4. 665. Bradbury, Cat. 337. DC. Syst. 1. 270; Prodr. 1. 34. Spreng. Syst. 2. 652. Bigel. Fl. Bost. 2 ed. 228. Torrey, Compend. 227. Seringe, Melange Bot. 2. 58. Gray, Manual, 40. Lawson, Ranunc. Canad. 41. Watson, King's Rep. 5. 8. Porter, Hayd. Rep. 1871, 477; Fl. Col. 3.

R. fluviatilis. Bigel. Fl. Bost. 139, not Willd.

R. lacustris. Beck & Tracy, "N. Y. Med. & Phys. Journ. 2. 112." Eaton, Manual, 4 ed. 424; Trans. Alb. Instit. 1. 148, **t. 5.** Paine, Pl. Oneida, 182.

R. Purshii. Torrey, Ann. Lyc. N. Y. 2. 163; Fl. N. Y. 1. 14. Hook. Fl. Bor.-Am. 1. 15, **t. 7, B. f. 1.** Don, Mill. 1. 33. Schlecht. in Linn. 6. 578. Torr. & Gray, Fl. 1. 19. Hook. & Arn. Bot. Beechey, 121. Ledeb. Fl. Ross. 1. 35. Turcz. in Fl. Baic. 1. 54. Dietr. Syn. 3. 318. Seem. Bot. Herald, 22. Newberry, Pac. R. Rep. 6. 65. Parry, Pl. Minn. 608. Hook. f. in Jour. Linn. Soc. 1. 124; Arct. Pl. 283. Lesqx. Fl. Ark. 346. Chapman, 8. Pl. Bourgeau, 254. Rothr. Fl. Alask. 442.

R. delphinifolius. Torrey in Eaton's Manual, 4 ed. 424.

R. amphibius. James, Cat. 183; Long's Exped. 2. 342?

R. Beckii. Don, Mill. 1. 39.

R. radicans, var. *γ. multifidus.* Regel, Fl. Ost-Sib. 1. 45, with syn.

Var. *β.*

R. Purshii. Richards. Frankl. Journ. 13.

R. Purshii, var. *γ.* Hook. Fl. Bor.-Am. 1. 15, **t. 7, B. f. 2.** Torr. & Gray, Fl. 1. 20. Watson, King's Rep. 5. 8.

R. limosus. Nutt. in Torr. & Gray, Fl. 1. 20. Walp. Rep. 1. 42. Dietr. Syn. 3. 318.

R. radicans, var. *β. repens.* Regel, l. c., with syn.

Var. *γ.* **repens.** Watson, King's Rep. 5. 8. Porter, Hayd. Rep. 1871, 477; Fl. Col. 3.

R. Purshii, var. *β.* Richards. l. c.

R. Purshii, var. *δ. repens.* Hook. l. c. Torr. & Gray, l. c. Gray, Proc. Acad. Philad. 1863, 56.

R. Gmelini & Langsdorffii. DC. Prodr. 1. 34.

R. radicans. C. A. Mey. in Ledeb. Fl. Alt. 2. 316. Ledeb. Icon. **t. 116**; Fl. Ross. 1. 34, with syn. Regel, Fl. Ost-Sib. 1. 44, making this the typical form.

R. MURICATUS, Linn. Michx. Fl. 1. 321. Pursh, 395. Elliott, 2. 64. Hook. Jour. Bot. 1. 187. Torr. & Gray, Fl. 1. 24. Chapman, 7. Gray, Manual, 43. Boland. Cat. 3.

R. muricatus, var. *Carolinus.* DC. Prodr. 1. 42.

R. Nelsoni. Gray, Proc. Am. Acad. 8. 373. Coulter, Hayd. Rep. 1872, 759.

R. recurvatus. Bong. Veg. Sitch. 123, not Poir.

R recurvatus, var. *Nelsoni.* DC. Syst. 1. 290; Prodr. 1. 40. Hook. Fl. Bor.-Am. 1. 20. Torr. & Gray, Fl. 1. 23. Ledeb. Fl. Ross. 1. 44

R. occidentalis. Torr. & Gray, Fl. 1. 22, in part.

R. occidentalis, var. *parviflorus.* Torrey, Bot. Wilkes, 214.

Var. **tenellus.** Gray, Proc. Am. Acad. 8. 374.

R. tenellus. Nutt. in Torr. & Gray, Fl. 1. 23. Walp. Rep. 1. 43. Dietr. Syn. 3.

323. Hook. in Lond. Jour. Bot. 6. 67. Cooper, Pac. R. Rep. 12. 55. Torrey, Bot. Wilkes, 214.

R. nivalis, Linn. See syn. in DC. Syst. 1. 273; Hook. Fl. Bor.-Am. 1. 17; Regel, Fl. Ost-Sib. 1. 39; Trautv. in Trud. Petr. Bot. Cada, 1. 48. — Schlecht. Animad. Ranunc. 2. 14; Linn. 6. 578. Hornem. Fl. Dan. 10, t. **1699**. R. Br. in Parry's 1st Voy. Appx. 264 (Flora, 7^2, Beilage 68). Greville, Mem. Soc. Wern. 3. 430. Richards. in Frankl. Journ. 2 ed. 24. Hook. in Trans. Linn. Soc. 14. 361; Fl. Bor.-Am. 1. 17. Torr. & Gray, Fl. 1. 20. Hook. & Arn. Bot. Beechey, 121. Ledeb. Fl. Ross. 1. 36. Seem. Bot. Herald, 23. Durand, Pl. Kane, 185. Lange, Pl. Grönl. 129. Hook. f. in Jour. Linn. Soc. 1. 116 & 120; Arct. Pl. 283 & 312. Dickie, Jour. Linn. Soc. 3. 110 & 11. 33. Gray, Am. Jour. Sci. 2. 33. 404. Rothr. Fl. Alask. 442. Lawson, Ranunc. Canad. 39. Watson, King's Rep. 5. 8.

R. frigidus. Willd. Spec. 2. 1312. Schlecht. Animad. Ranunc. 2. 15. DC. Prodr. 1. 35. Hook. Fl. Bor.-Am. 1. 18. Seem. Bot. Herald, 54. Regel, Fl. Ost-Sib. 1. 46, referring to it *R. nivalis* and other species.

R. altaicus, Laxm. Ledeb. Fl. Ross. 1. 37, with syn.

Var. **sulphureus**, Wahl. See DC. Prodr.; Hook. Fl. Bor.-Am.; Ledeb. Fl. Ross.; Trautv. l. c. — Durand, Pl. Kane, 185.

R. sulphureus. Solander, Phipp's Voy. 202. DC. Syst. 1. 274. Richards. in Frankl. Journ. 14. Kept distinct by Malmgren in Seem. Jour. Bot. 2. 135.

Var. **Eschscholtzii**. Watson, King's Rep. 5. 8. Porter, Hayd. Rep. 1871, 477; Fl. Col. 3. Coulter, Hayd. Rep. 1872, 759.

R. Eschscholtzii. Schlecht. Animad. Ranunc. 2. 16, t. 1 (Spreng. Neue Entdeck. 2. 315); Linn. 6. 578. DC. Prodr. 1. 35. Spreng. Syst. 2. 651. Hook. Fl. Bor.-Am. 1. 18. Don, Mill. 1. 34. Torr. & Gray, Fl. 1. 21. Dietr. Syn. 3. 319. Seem. Bot. Herald, 23. Gray, Am. Jour. Sci. 2. 33. 241 & 404; Proc. Acad. Philad. 1863, 56. Pl. Bourgeau, 254. Rothr. Fl. Alask. 442.

R. Nuttallii. Gray, Proc. Acad. Philad. 1863, 56. Porter, Fl. Col. 8.

Cyrtorhyncha ranunculina. Nutt.; Torr. & Gray, Fl. 1. 26. Dietr. Syn. 3. 343.

R. oblongifolius. Elliott, 2. 58. Seringe, Melange Bot. 2. 69. Torrey, Pac. R. Rep. 4. 62. Gray, Manual, 41; Hall's Pl. Tex. 3. Young, Fl. Tex. 144.

R. Flammula. Michx. Fl. 1. 321.

R. pusillus, var. δ. Torr. & Gray, Fl. 1. 17. Chapman, 7.

R. Texensis. Engelm. Pl. Lindh. 2. Walp. Ann. 2. 10. Wood, Cl.-Book, 206. Young, Fl. Tex. 144.

R. occidentalis. Nutt. in Torr. & Gray, Fl. 1. 22, excl. syn. Walp. Rep. 1. 43. Dietr. Syn. 3. 323. Newberry, Pac. R. Rep. 6. 65. Cooper, Pac. R. Rep. 12. 55. Rothr. Fl. Alask. 442. Gray, Proc. Am. Acad. 8. 374.

R. hispidus. Hook. Fl. Bor.-Am. 1. 19, in part.

Var. **canus**. Gray, Proc. Am. Acad. 8. 374.

R. canus. Benth. Pl. Hartw. 294. Walp. Ann. 2. 7. Gray, Pl. Lindh. 142.

R. orthorhynchus. Hook. Fl. Bor.-Am. 1. 21, t. 9. Cham. in Linn. 6. 579. Don, Mill. 1. 39. Torr. & Gray, Fl. 1. 24. Dietr. Syn. 3. 325. Cooper, Pac. R. Rep. 12. 55. Watson, King's Rep. 5. 9, excl. var. Gray, Proc. Am. Acad. 8. 373. Torrey, Bot. Wilkes, 214.

? *R. dichotomus*. Moc. & Sess. in DC. Syst. 1. 283; Prodr. 1. 39. Cham. & Schlecht. in Linn. 5. 210. Schlecht. in Linn. 6. 579 & 10. 233.

R. ornithorhynchus. Walp. Rep. 1. 43. Peyritsch in Linn. 30. 52.

R. palmatus. Elliott, 2. 60. Seringe, Melange Bot. 2. 63. Torr. & Gray, Fl. 1. 658. Chapman, 8.

R. Carolinianus. Torr. & Gray, Fl. 1. 23, excl. syn.; not DC.

R. Pallasii. Schlecht. Animad. Ranunc. 1. 15, **t. 2** (Spreng. Neue Entdeck. 2. 314); Linn. 6. 577. Spreng. Syst. 2. 649. Seringe, Melange Bot. 2. 53. Hook. Fl. Bor.-Am. 1. 10. Don, Mill. 1. 32. Torr. & Gray, Fl. 1. 17. Ledeb. Fl. Ross. 1. 31. Dietr. Syn. 3. 317. Seem. Bot. Herald, 22. Ascherson, Fl. Lab. in Flora, 43. 369. Hook. f. Arct. Pl. 283. Rothr. Fl. Alask. 442.

R. PARVIFLORUS, Linn. Torr. & Gray, Fl. 1. 25 & 659, in part. Chapman, 7. Gray, Manual, 43; Hall's Pl. Tex. 3. Grisebach, Fl. Br. W. Ind. 2.

R. trachyspermus. Elliott, 2. 65; not Engelm. Seringe, Melange Bot. 2. 67. Hook. Jour. Bot. 1. 187.

R. Pennsylvanicus. Linn. f., Suppl. 272. Willd. Spec. 2. 1323. Poir. Dict. 6. 120. Barton, Comp. Fl. Phil. 2. 25. Smith in Rees Cyc. n. 46. DC. Syst. 1. 290; Prodr. 1. 40. Richards. in Frankl. Journ. 13. Elliott, 2. 63. Seringe, Melange Bot. 2. 64. Hook. Fl. Bor.-Am. 1. 19; Lond. Jour. Bot. 6. 67. Torr. & Gray, Fl. 1. 22. Dietr. Syn. 3. 323. Torrey, Fl. N. Y. 1. 15; Bot. Wilkes, 214. Chapman, 8. Hook. f. Arct. Pl. 283. Gray, Manual, 42. Lawson, Ranunc. Canad. 35. Porter, Hayd. Rep. 1870, 472.

R. Canadensis. Jacq. Misc. 2. 343; Icon. Rar. 1. 11, **t. 105.**

R. trifidius. Moench, Suppl. 70. Barton, Prodr. Fl. Phil. 60.

R. hispidus. Pursh, 395.

R. hirsutus. Curtis in Eaton's Manual, 4 ed. 424?

R. pusillus. Poir. Dict. 6. 99. Pursh, 392. Smith, Rees Cyc. n. 6. DC. Syst. 1. 249; Prodr. 1. 32. Deless. Icon. 1. 7, **t. 28.** Elliott, 2. 57. Spreng. Syst. 2. 648. Don, Mill. 1. 31. Torr. & Gray, Fl. 1. 17, in part. Nees, Pl. Wied, 3. Torrey, Fl. N. Y. 1. 12. Chapman, 7, in part. Gray, Manual, 41. Lawson, Ranunc. Canad. 41.

R. Flammula. Walt. Fl. Car. 159.

R. humilis. Persoon, 2. 102.

R. pygmæus, Wahl. See syn. in DC. Syst. 1. 273. — Pursh, 393. Schlecht. Animad. Ranunc. 2. 12; Linn. 6. 578. Richards. in Frankl. Journ. 14. Seringe, Melange Bot. 2. 59. Meyer, Pl. Lab. 97. Hook. Fl. Bor.-Am. 1. 16. Don, Mill. 1. 34. Torr. & Gray, Fl. 1. 20. Hook. & Arn. Bot. Beechey, 121 & 312. Seem. Bot. Herald, 23. Lange, Pl. Grönl. 129. Regel, Fl. Ost-Sib. 1. 46. Hook. f. Arct. Pl. 283 & 312. Rothr. Fl. Alask. 442. Lawson, Ranunc. Canad. 39. Trautv. Trud. Petr. Bot. Cada, 1. 47. Porter, Fl. Col. 3.

R. Sabinii. R. Br. in Parry's 1st Voy. Appx. 264 (Flora, 7², Beil. 69). Seringe, Melange Bot. 2. 59. Hook. Fl. Bor.-Am. 1. 17. Don, Mill. 1. 34. Torr. & Gray, Fl. 1. 20. Walp. Rep. 1. 43. Dietr. Syn. 3. 319. Durand, Pl. Kane, 185.

R. recurvatus. Poir. Dict. 6. 123. Pursh, 294. Smith, Rees Cyc. n. 67. Deless. Icon. 1. 11, **t. 41.** DC. Syst. 1. 290, excl. var. *Nelsoni;* Prodr. 1. 39. Schlecht. Animad. 2. 28; Linn. 6. 579. Elliott, 2. 63. Spreng. Syst. 2. 655. Seringe, Melange Bot. 2. 64. Hook. Fl. Bor.-Am. 1. 20, excl. vars.; Jour. Bot. 1. 187. Don, Mill. 1. 38. Torr. & Gray, Fl. 1. 22 & 658. Ledeb. Fl. Ross. 1. 44, excl. β. Dietr. Syn. 3. 313. Torrey, Fl. N. Y. 1. 16. Chapman, 8. Gray, Manual, 42; Proc. Am. Acad. 8. 374.

R. lanuginosus. Walt. Fl. Car. 159.

R. leptopetalus. Raf. Fl. Lud. 83?

R. saniculæformis. Muhl. Cat. 56. Walp. Rep. 2. 740.

R. fascicularis. Spreng. Neue Entdeck. 1. 228, excl. syn.

R. repens, Linn. See syn. in DC. Syst. 1. 285; Ledeb. Fl. Ross. 1. 43 & 783. —

Pursh, 394. Elliott, 2. 60. Hook. Fl. Bor.-Am. 1. 19. Torr. & Gray, Fl. 1. 21 & 658. Torrey, Fl. N. Y. 1. 14; Nicol. Rep. 144; Pac. R. Rep. 4. 62; Bot. Wilkes, 215. Parry, Pl. Minn. 609. Gray, Pac. R. Rep. 12. 40; Manual, 43. Chapman, 8. Lesqx. Fl. Ark. 346. Hook. f. Arct. Pl. 283. Pl. Bourgeau, 263. Lawson, Ranunc. Canad. 34. Boland. Cat. 3. Watson, King's Rep. 5. 9. Porter, Hayd. Rep. 1870. 472; 1871, 477. Coulter, Hayd. Rep. 1872, 759. Brewer, Bot. Calif. 1. 8.

R. prostratus. Poir. Dict. 6. 113. Eaton, Manual, 5 ed. 358.

R. tomentosus. Poir. Dict. 6. 127. Pursh, 394. Smith, Rees Cyc. n. 65. DC. Syst. 1. 292; Prodr. 1. 40. Spreng. Neue Entdeck. 1. 287; Syst. 2. 653. Elliott, 2. 64. Don, Mill. 1. 39. Torr. & Gray, Fl. 1. 23. Dietr. Syn. 3. 324.

R. lanuginosus, var. γ. Poir. Dict. 6. 109. Pursh, 394.

R. intermedius. Eaton, Manual, 3 ed. 424.

R. Clintonii. Beck, Flora, 9. Paine, Cat. Pl. Oneida, 55.

Var. hispidus. Torr. & Gray, Fl. 1. 658. Nees, Pl. Wied, 3. Torrey, Nicol. Rep. 144; Mex. Bound. 30. Chapman, 8.

R. hispidus. Michx. Fl. 1. 321. Poir. Dict. 6. 110. Smith, Rees Cyc. n. 69. DC. Syst. 1. 289; Prodr. 1. 39. Schlecht. Animad. Ranunc. 2. 28. Elliott, 2. 52. Spreng. Syst. 2. 655. Hook. Fl. Bor.-Am. 1. 19, in part. Don, Mill. 1. 38. Torr. & Gray, Fl. 1. 22. Dietr. Syn. 3. 323. Hook. f. Arct. Pl. 283.

R. Marilandicus. Poir. Dict. 6. 126. Pursh, 394. Smith, Rees Cyc. n. 66. DC. Syst. 1. 291; Prodr. 1. 40. Schlecht. Animad. Ranunc. 2. 31. Spreng. Syst. 2. 656. Don, Mill. 1. 39. Dietr. Syn. 3. 324.

R. Pennsylvanicus & philonotis. Pursh, 393.

R. fascicularis. Barton, Comp. Fl. Phil. 2. 25, not Bigel. Muhl. Cat. 56? Schlecht. Animad. Ranunc. 2. 30, t. 2; Linn. 5. 210. Seringe, Melange Bot. 2. 64.

R. Schlechtendahlii. Hook. Fl. Bor.-Am. 1. 21. Graham in Edinb. Phil. Jour. 1829, 188. Don, Mill. 1. 38. Torr. & Gray, Fl. 1. 24 & 659. Walp. Rep. 1. 43. Dietr. Syn. 3. 324.

? *R. Hookeri.* Schlecht. in Linn. 9. 610. Dietr. Syn. 3. 321. Peyricht in Linn. 30. 51.

R. repens, var. *Marilandicus.* Torr. & Gray, Fl. 1. 31. Torrey, Mex. Bound. 30.

Var. nitidus. Chapman, 8.

R. lucidus. Poir. Dict. 6. 113.

? *R. septentrionalis.* Poir. Dict. 6. 123. Pursh, 394. Torr. & Gray, Fl. 1. 25.

R. nitidus. Muhl. Cat. 2 ed. 56, not Walt. Elliott, 2. 60. Seringe, Melange Bot. 2. 63. Hook. Fl. Bor.-Am. 1. 20. Don, Mill. 1. 39. Dietr. Syn. 3. 324.

R. Carolinianus. DC. Syst. 1. 292; Prodr. 1. 40. Schlecht. Animad. Ranunc. 2. 31. Elliott, 2. 62. Spreng. Syst. 2. 656.

R. Belvisii. DC. Syst. 1. 291; Prodr. 1. 40. Spreng. Syst. 2. 655. Don, Mill. 1. 39.

R. rhomboideus. Goldie in Edinb. Phil. Jour. 6. 329 (1822), **t. 11, fig. 1.** Richards. in Frankl. Journ. 13. Hook. Fl. Bor.-Am. 1. 12. Don, Mill. 1. 33. Torr. & Gray, Fl. 1. 18. Walp. Rep. 1. 42. Dietr. Syn. 3. 317. Pl. Bourgeau, 254. Gray, Manual, 42. Lawson, Ranunc. Canad. 36.

R. ovalis. Raf. in Jour. Bot. 1814, 268. Poir. Suppl. 5. 778. DC. Prodr. 1. 43. Graham, Edinb. Phil. Jour. 1829, 188. Hook. Fl. Bor.-Am. 1. 12, **t. 6, fig. B.** Don, Mill. 1. 33. Torr. & Gray, Fl. 1. 18. Walp. Rep. 1. 42. Dietr. Syn. 3. 318.

R. brevicaulis. Hook. Fl. Bor.-Am. 1. 13, **t. 7, fig. A**; Lond. Jour. Bot. 6. 66. Don, Mill. 1. 29. Torr. & Gray, Fl. 1. 18. Walp. Rep. 1. 42. Dietr. Syn. 3. 314.

R. sceleratus, Linn. See syn. in DC. Syst. 1. 298; Schlecht. Animad. Ranunc.

2. 10; Ledeb. Fl. Ross. 1. 45 & 733. — Pursh, 393. Richards. in Frankl. Journ. 14. DC. Prodr. 1. 34. Elliott, 2. 59. Hook. Fl. Bor.-Am. 1. 15; Lond. Jour. Bot. 6. 66. Torr. & Gray, Fl. 1. 19. Torrey, Fl. N. Y. 1. 13; Nicol. Rep. 144; Frem. Rep. 87. Chapman, 8. Pl. Bourgeau, 254. Hook. f. Arct. Pl. 283. Gray, Manual, 42. Lawson, Ranunc. Canad. 38. Watson, King's Rep. 5. 8. Porter, Hayd. Rep. 1870, 472; Fl. Col. 3.

R. trachyspermus. Engelm. in Pl. Lindh. 3, not Ell. Walp. Ann. 2. 10. Torrey, Mex. Bound. 29. Gray; Hall's Pl. Tex. 3.

Var. **Lindheimeri.** Engelm. l. c. Torrey, Pac. R. Rep. 4. 62.

R. acris; Californicus.
affinis; auricomus.
alismæfolius; ambigens.
Altaicus; nivalis.
amœnus; adoneus, affinis.
amphibius; multifidus.
arcticus & auricomus; affinis.
Beckii; multifidus.
Belvisii; repens.
brevicaulis; rhomboideus.
cæspitosus; affinis.
Canadensis; Pennsylvanicus.
canus; Californicus, occidentalis.
cardiophyllus; affinis.
Carolinianus; palmatus, repens.
Cassubicus; auricomus.
Chamissonis; glacialis.
Clintonii; repens.
delphinifolius; Californicus, multifidus.
dichotomus; orthorhynchus.
dissectus; Californicus.
divaricatus; aquatilis.
Eschscholtzii; affinis, nivalis.
fascicularis; Californicus, recurvatus, repens.
Ficaria; Caltha palustris.
filiformis; Flammula.
Flammula; ambigens, oblongifolius, pusillus.
fluviatilis; aquatilis, multifidus.
frigidus; nivalis.
glaberrimus; alismæfolius.
Gmelini; multifidus.
halophilus; Cymbalaria.
heterophyllus; aquatilis.
hirsutus; Pennsylvanicus.
hispidus; occidentalis, Pennsylvanicus, repens.
Hookeri; repens.
humilis; pusillus.
R. hydrocharis; aquatilis.
intermedius; repens.
lacustris & Langsdorffii; multifidus.
lanuginosus; recurvatus, repens.
leptopetalus; recurvatus.
limosus; multifidus.
Lingua; ambigens.
lucidus & Marylandicus; repens.
micranthus; abortivus.
natans; hyperboreus.
nitidus; abortivus, repens.
occidentalis; Nelsoni.
orthorhynchus; adoneus.
ovalis; rhomboideus.
pantothrix; aquatilis.
parviflorus; hebecarpus.
pedatifidus; affinis, Hookeri.
Pennsylvanicus, philonotis & prostratus; repens.
Purshii; multifidus.
pusillus; oblongifolius.
radicans; hyperboreus, multifidus.
recurvatus; Nelsoni.
repens; macranthus.
reptans; Flammula.
Robini; ambigens.
Sabinii; pygmæus.
salsuginosus; Cymbalaria.
saniculæformis; recurvatus.
sarmentosus; Cymbalaria.
Schlechtendahlii & septentrionalis; repens.
sulphureus; nivalis.
tenellus; Nelsoni.
Texensis; oblongifolius.
tomentosus; repens.
trachyspermus; parviflorus.
tridentatus; Cymbalaria.
trifolius; Pennsylvanicus.
tuberosus; Hornemanni.

THALICTRUM alpinum, Linn. See syn. in DC. Syst. 1. 175; Ledeb. Fl. Ross. 1. 6; Regel, Uebers. Thalict. 15. — Bot. Mag. t. **2237**. Schlecht. in Linn. 6. 572. Torr. & Gray, Fl. 1. 39. Hook. & Arn. Bot. Beechey, 120. Walp. Ann. 4. 11. Seem. Bot. Herald, 23. Lange, Pl. Grönl. 128. Hook. f. in Jour. Linn. Soc. 1. 116; Arct. Pl. 283. Wood, Cl.-Book, 204. Gray, Am. Jour. Sci. 2. 33. 241; Proc. Acad. Philad. 1863, 56. Rothr. Fl. Alask. 442. Lawson, Ranunc. Canad. 33. Watson, King's Rep. 5. 4. Porter, Fl. Col. 1.

T. anemonoides. Michx. Fl. 1. 322. DC. Syst. 1. 186; Prodr. 1. 15. Elliott, 2. 52. Spreng. Syst. 2. 674. Hook. Fl. Bor.-Am. 1. 4. Sweet, Brit. Fl. Gard. 2 ser. t. **150**. Darling. Fl. Cestr. 333. Torr. & Gray, Fl. 1. 39. Nees, Pl. Wied, 3. Dietr. Syn. 3. 343. Torrey, Fl. N. Y. 1. 24. Gray, Genera, 1. 24, t. **6**; Manual, 38. Parry, Pl. Minn. 608. Lemaire, L'Ill. Hort. 6, t. **211**. Chapman, 6.

Anemone thalictroides. Linn. Spec. 542. Hill, Veg. Syst. 25, t. **45**, fig. **5**. Lam. Dict. 1. 168. Ait. Hort. Kew. 2. 257. Willd. Spec. 2. 1284; Hort. Berol. t. **44**. Juss. in Ann. Mus. 3. 249, t. **21**. Sims, Bot. Mag. t. **866**. Persoon, 2. 98. Poir. Suppl. 1. 363. Pursh, 387. Barton, Fl. N. Am. 2. 27, t. **44**. Lodd. Bot. Cab. t. **770** & **964**. Don, Mill. 1. 15.

Syndesmon thalictroides. Hoffmansegg in Flora, 1832, Intell. Blatt. 34. Lawson, Ranunc. Canad. 31.

Anemonella thalictroides. Spach, Hist. Veg. 7. 240.

T. clavatum. DC. Syst. 1. 171; Prodr. 1. 11. Deless. Icon. Sel. 1. 2, t. **6**. Spreng. Syst. 2. 670. Don, Mill. 1. 11. Gray, Am. Jour. Sci. 42. 17 (Lond. Jour. Bot. 1. 223); Genera, 1. 24, t. **6**; Proc. Acad. Philad. 1863, 56; Manual, 39. Dietr. Syn. 3. 338. Chapman, 6. Wood, Bot. & Fl. 19.

T. filipes. Torr. & Gray, Fl. 1. 38. Walp. Rep. 1. 13. Dietr. Syn. 3. 342. Wood, Cl.-Book, 204.

T. Cornuti. Linn. Spec. 545. Hill, Veg. Syst. 24, t. **7**, fig. **4**. Ait. Hort. Kew. 2. 262. Willd. Spec. 2. 1296. Poir. Dict. 5. 319. Pursh, 388. Hook. Fl. Bor.-Am. 1. 3, t. **2**. Don, Mill. 1. 11, in part. Torr. & Gray, Fl. 1. 38, in part; Pac. R. Rep. 2. 125. Torrey, Fl. N. Y. 1. 23, in part; Frem. Rep. 87; Emory's Rep. 406. Gray, Pl. Fendl. 5; Pac. R. Rep. 12. 40; Manual, 39. Chapman, 5. Lesqx. Fl. Ark. 346. Parry, Pl. Minn. 608. Pl. Bourgeau, 254. Lawson, Ranunc. Canad. 31.

T. confertum. Moench, 297.

T. discolor. Willd. Enum. Appx. 46. Spreng. Pl. Min. Cog. 1. 39.

T. crenatum. Desf. "Cat. h. Par. 2 ed. 126."

T. rugosum. Pursh, 388. DC. Syst. 1. 185; Prodr. 1. 14. Elliott, 2. 51.

T. Carolinianum. Bosc. in DC. Syst. 1. 174; Prodr. 1. 12. Elliott, 2. 51. Spreng. Syst. 2. 671. Don, Mill. 1. 12.

T. corynellum. DC. Syst. 1. 172; Prodr. 1. 12. Richards. in Frankl. Journ. 12. Spreng. Syst. 2. 671. Seem. Bot. Herald, 50.

? *T. leucostemon*. Koch & Bouche, Ind. Sem. Berol. 1854, 13. Walp. Ann. 4. 12.

T. dasycarpum. Fisch. & Lall. in Ind. Sem. Petr. 1841, 72 (Litt. Ber. zu Linn. 1841, 175), in part. Walp. Rep. 1. 13.

T. Cornuti, β. Fisch. & Mey. Ind. Sem. Petr. 7. 34.

T. debile. Buckley, Am. Jour. Sci. 45. 175. Gray, Pl. Wright, 2. 8. Chapman, 5. Young, Fl. Tex. 142. — Var. **Texanum**. Gray in Hall's Pl. Tex. 3.

T. dioicum. Linn. Spec. 545. Ait. Hort. Kew. 2. 262. Moench, 297. Willd. Spec. 2. 1296. Poir. Dict. 5. 320. Pursh, 388. DC. Syst. 1. 173; Prodr. 1. 12. Elliott, 2. 50. Hook. Fl. Bor.-Am. 1. 13; Lond. Jour. Bot. 6. 68. Don, Mill. 1. 12. Nuttall, Jour. Acad. Philad. 7. 7? Torr. & Gray, Fl. 1. 38. Dietr. Syn. 3.

339. Torrey, Fl. N. Y. 1. 23; Nicol. Rep. 144; Pac. R. Rep. 4. 61. Seem. Bot. Herald, 50. Newberry, Pac. R. Rep. 6. 65. Hook. f. Arct. Pl. 288. Chapman, 5. Pl. Bourgeau, 254. Gray, Manual, 39. Lawson, Ranunc. Canad. 32. Boland. Cat. 3.

T. lævigatum. Michx. Fl. 1. 322. Persoon, 2. 100.

T. Fendleri. Engelm.; Gray, Pl. Fendl. 5; Pl. Wright. 2. 7; Am. Jour. Sci. 2. 33. 241; Proc. Acad. Philad. 1863, 56. Walp. Ann. 2. 5. Torrey, Sitgr. Rep. 155; Mex. Bound. 29. Boland. Cat. 3. Anderson, Cat. Pl. Nev. 117. Watson, King's Rep. 5. 4. Porter, Hayd. Rep. 1871, 477; Fl. Col. 2. Coulter, Hayd. Rep. 1872, 758.

? *T. megacarpum.* Torrey, Frem. Rep. 87.

Var. **polycarpum.** Torrey, Pac. R. Rep. 4. 61.

T. Kemense. Fries, Fl. Hall. 1. 94. Ledeb.. Fl. Ross. 1. 13. Walp. Rep. 1. 11. Maxim. Fl. Amur. 16. Regel, Uebers. Thalict. 36, **t. 3, fig. 2 & 3,** with syn.

T. majus. Schlecht. in Linn. 6. 573? Hook. & Arn. Bot. Beechey, 111?

T. minus, Linn., var. *majus.* Miquel, Prol. Fl. Jap. 191.

T. nudicaule. Schwein.; Torr. & Gray, Fl. 1. 39. Walp. Rep. 1. 13. Dietr. Syn. 3. 343. Chapman, 6.

T. occidentale. Gray, Proc. Am. Acad. 8. 372.

T. dioicum, var. *oxycarpum.* Torrey, Bot. Wilkes, 212?

T. purpurascens. Linn. Spec. 546. Hill, Veg. Syst. 24, **t. 8, fig. 4.** Willd. Spec. 2. 1299. Poir. Dict. 5. 319. Ait. f. Hort. Kew. 3. 348. Spreng. Pl. Min. Cog. 1. 38. Pursh, 389. DC. Syst. 1. 174; Prodr. 1. 12. Hook. Fl. Bor.-Am. 1. 3. Don, Mill. 1. 12. Gray, Manual, 39; Hall's Pl. Tex. 3. Lawson, Ranunc. Canad. 32. Porter, Fl. Col. 1.

T. rugosum. Ait. Hort. Kew. 2. 262? Willd. Spec. 2. 1298. Poir. Dict. 5. 319. Spreng. l. c. 1. 38; Syst. 2. 673. Torrey, Compend. 223. Don, Mill. 1. 14.

T. polygamum. Muhl. Ind. Fl. Lanc. 172; Cat. 2 ed. 56. Spreng. Syst. 2. 671.

T. pubescens. Pursh, 388.

T. revolutum. DC. Syst. 1. 173; Prodr. 1. 12. Elliott, 2. 49. Spreng. Syst. 2. 671.

T. Cornuti. Torr. & Gray, Fl. 1. 38, in part. Torrey, Fl. N. Y. 1. 24, in part.

Var. **ceriferum.** Austin; Gray's Manual, 39. Gray, Hall's Pl. Tex. 3.

T. sparsiflorum. Turcz. in Ind. Sem. Petr. 1. 40 (Ann. Sci. Nat. 2. 4. 332; Litt. Ber. zu Linn. 10. 105); Fl. Baic. 1. 27. Ledeb. Fl. Ross. 1. 5 & 726. Walp. Rep. 1. 12 & 13. Maxim. Fl. Amur. 12. Regel, Uebers. Thalict. 3, **t. 1.** Gray, Pl. Wright, 2. 8; Am. Jour. Sci. 2. 33. 241; Proc. Acad. Philad. 1863, 56. Watson, King's Rep. 5. 4. Porter, Hayd. Rep. 1870, 472; Fl. Col. 1.

T. clavatum. Hook. Fl. Bor.-Am. 1. 2; not DC. Don, Mill. 1. 11. Torr. & Gray, Fl. 1. 37. Lawson, Ranunc. Canad. 33.

T. Richardsonii. Gray, Am. Jour. Sci. 42. 17 (Lond. Jour. Bot. 1. 223).

T. Wrightii. Gray, Pl. Wright. 2. 7. Walp. Ann. 4. 12.

T. Carolinianum; T. Cornuti; Anemone Walteri.
clavatum; sparsiflorum.
Cornuti; dasycarpum, purpurascens.
corynellum & crenatum; Cornuti.
dioicum; occidentale.
T. discolor; Cornuti.
filipes; clavatum.
lævigatum; dioicum.
leucostemon; Cornuti.
majus & minus; Kemense.
palmatum; Trautvetteria palmata.

T. polygamum & pubescens; purpurascens.
ranunculinum; Trautvetteria palmata.
revolutum; purpurascens.

T. Richardsonii; sparsiflorum.
rotundifolium; Trautvetteria palmata.
rugosum; Cornuti, purpurascens.

TRAUTVETTERIA palmata. Fisch. & Mey. Ind. Sem. Petr. 1. 22 (Litt. Ber. zu Linn. 10. 82; Ann. Sci. Nat. 2. 4. 335). Torr. & Gray, Fl. 1. 37. Spach, Hist. Veg. 7. 234. Walp. Rep. 1. 59. Ledeb. Fl. Ross. 1. 741. Gray, Genera, 1. 26, t. 7; Manual, 40. Chapman, 6. Baillon, Hist. Pl. 1. 36 (under *Ranunculus*).

Hydrastis Caroliniensis. Walt. Fl. Car. 156.

Cimicifuga palmata. Michx. Fl. 1. 316. Poir. Suppl. 2. 26. Lam. Ill. 3. 34, t. 500. Pursh, 373. Sims, Bot. Mag. t. **1630.** Elliott, 2. 17. Spreng. Syst. 2. 628. Don, Mill. 1. 64.

Thalictrum ranunculinum. Muhl. in Willd. Enum. 585. Pursh, 389. DC. Syst. 1. 186; Prodr. 1. 15. Elliott, 2. 52. Don, Mill. 1. 14.

Hydrastis Canadensis. Poir. Suppl. 3. 71, not Linn.

Actæa palmata. DC. Syst. 1. 383. Dietr. Syn. 3. 233.

Thalictrum palmatum. Spreng. Syst. 2. 674.

Thalictrum Japonicum. Zieb. & Zucc., f. Miquel, Prol. Fl. Jap. 192.

Var. **occidentalis.** Gray, Proc. Am. Acad. 8. 372.

T. grandis. Nuttall in Torr. & Gray, Fl. 1. 37. Walp. Rep. 1. 60. Torrey, Bot. Wilkes, 213.

Actæa palmata. Hook. Fl. Bor.-Am. 1. 26, excl. syn.

Actæa grandis. Dietr. Syn. 3. 233.

TROLLIUS laxus. Salisb. in Trans. Linn. Soc. 8. 303 (1803). Pursh, 391. Gray, Ann. Lyc. N. Y. 3. 222; Genera, 1. 34, t. **11**; Manual, 44. Torr. & Gray, Fl. 1. 28. Torrey, Fl. N. Y. 1. 18, t. **3**; Bot. Wilkes, 215. Lawson, Ranunc. Canad. 45. Watson, King's Rep. 5. 10. Porter, Hayd. Rep. 1870, 473; 1871, 477. Coulter, Hayd. Rep. 1872, 759.

T. Americanus. Muhl. Ind. Fl. Lanc. 172 (1791); Cat. 2 ed. 56. Lodd. Bot. Cab. t. **56.** Sims, Bot. Mag. t. **1988.** DC. Syst. 1. 313; Prodr. 1. 46. Spreng. Syst. 2. 658. Hook. Fl. Bor.-Am. 1. 23. Don, Mill. 1. 45. Spach, Hist. Veg. 7. 299. Ledeb. Fl. Ross. 1. 51. Turcz. Fl. Baic. 1. 63. Dietr. Syn. 3. 336. Regel & Til. Fl. Ajan. 34. Regel, Fl. Ost-Sib. 1. 56.

Var. **albiflorus.** Gray, Am. Jour. Sci. 2. 33. 241; Proc. Acad. Philad. 1863, 57.

XANTHORRHIZA apiifolia. L'Her. Stirp. 79, t. **38** (Ehrh. Beitrage, 6. 123). Ait. Hort. Kew. 1. 399. Willd. Spec. 1. 1568. Barton, Elem. Bot. Appx. 24, t. **12.** Michx. Fl. 1. 186. Nouv. Duham. 3. 181, t. **37.** Poir. Dict. 8. 838. Desf. Arb. 1. 371. Sims, Bot. Mag. t. **1736.** Barton, Mat. Med. 2. 11, t. **46.** Nuttall, Genera, 1. 207. DC. Syst. 1. 386. Prodr. 1. 65. Elliott, 1. 376. Röm. & Schult. Syst. 6. 801. Lam. Ill. 3. 444, t. **854.** Torrey, Fl. U. S. 1. 333; Fl. N. Y. 1. 25. Don, Mill. 1. 65. Lindl. Fl. Med. 12. Spach, Hist. Veg. 7. 409. Torr. & Gray, Fl. 1. 40. Dietr. Syn. 2. 1037. Loud. Arbor. 1. 251, fig. **31.** Gray, Genera, 1. 45, t. **17**; Manual, 47. Curtis, Bot. N. Car. 104. Chapman, 11. Baillon, Hist. 1. 6, f. **13-14.**

Xanthorhiza simplicissima. Marshall, Arbust. 168.

Actæa dioica. Walt. Fl. Car. 152.

DILLENIACEÆ (?).

CROSSOSOMA Californicum. Nutt. Pl. Gamb. in Journ. Acad. Philad. 2. 1. 150, t. **22,** & Proc. 4. 8. Torrey, Pac. R. Rep. t. **1,** fig. **1, 2**; Bot. Wilkes, 218. Watson, Proc. Am. Acad. 11. 112. Brew. & Wats. Bot. Calif. 1. 13.

CALYCANTHACEÆ.

CALYCANTHUS floridus. Linn. Spec. 2 ed. 718. Lam. Dict. 1. 565; Ill. 2. 551, t. **445**, f. **1**. Marsh. Arbust. 24. Ait. Hort. Kew. 2. 220. Willd. Spec. 2. 1119. Bot. Mag. t. **503**. Nouv. Duham. 1. 217, t. **47**. Michx. Fl. 1. 305. Schkuhr, Handb. t. **138**. Pursh, 357. Nutt. Genera, 1. 312. Elliott, 1. 576. Guimp. Ott. & Hayne, t. **4**. DC. Prodr. 3. 2. Spreng. Syst. 2. 543. Mirbel, Ann. Sci. Nat. 1. 14. 367, t. **13** (stem). Don, Mill. 2. 652. Spach, Hist. Veg. 4. 283. Audubon, Birds, t. **393**. Torr. & Gray, Fl. 1. 475, excl. vars. Dietr. Syn. 3. 206. Schnizl. Icon. t. **271**. Agardh, Theor. Syst. t. **11**, f. **11, 12**. Curtis, Bot. N. Car. 107. Lesqx. Fl. Ark. 359. Chapman, 130. Gray, Struct. Bot. 417, f. **814–821**; Manual, 163. Baill. Hist. Pl. 1. 289, f. **306–308**.

C. sterilis. Walt. Fl. Car. 151. Poir. Suppl. 2. 39.

C. glaucus. Willd. Hort. Berol. 80; Enum. 559. Pursh, 357. Poir. Suppl. 5. 591. Nutt. Genera, 1. 312. Elliott, 1. 577. Guimp. Ott. & Hayne, t. **5**. DC. Prodr. 3. 2. Spreng. Syst. 2. 544. Spach, Hist. Veg. 4. 282. Curtis, Bot. N. Car. 108. Chapman, 130. Gray, Manual, 163.

C. fertilis. Walt. Fl. Car. 151. Poir. Suppl. 2. 39. Ait. f. Hort. Kew. 3. 282. Lindl. Bot. Reg. t. **404**. Don, Mill. 2. 652, f. **85**.

C. floridus, var. *glaucus*. Torr. & Gray, Fl. 1. 475. Dietr. Syn. 3. 206.

C. lævigatus. Willd. Hort. Berol. t. **80**; Enum. 559. Pursh, 358. Poir. Suppl. 5. 591. Nutt. Genera, 1. 312. Lindl. Bot. Reg. t. **481**. Elliott, 1. 577. Torrey, Fl. U. S. 501. Guimp. Ott. & Hayne, t. **6**. DC. Prodr. 3. 2. Spreng. Syst. 2. 544. Don, Mill. 2. 652. Spach, Hist. Veg. 4. 282. Curtis, Bot. N. Car. 108. Chapman, 130. Baill. Hist. Pl. 1. 290, f. **309–311**. Maout & Decne. 397, **fig.** Gray, Manual, 163.

C. nanus. Nouv. Duham. 1. 219, t. **48**.

C. ferax. Michx. Fl. 1. 305. Loisel. Herb. Amat. t. **172** b.

C. fertilis. Andr. Bot. Rep. 8, t. **539**.

C. inodorus. Elliott, 1. 576. Spach, Hist. Veg. 4. 283.

C. floridus, vars. *inodorus* & *lævigatus*. Torr. & Gray, Fl. 1. 475. Dietr. Syn. 3. 206.

C. occidentalis. Hook. & Arn. Bot. Beechey, 340, t. **84**. Torr. & Gray, Fl. 1. 476. Dietr. Syn. 3. 206. Walp. Rep. 2. 60. Benth. Pl. Hartw. 309. Lindl. Jour. Hort. Soc. 6. 218. Paxton, Fl. Gard. 2. 98, f. **184**. Hook. Bot. Mag. t. **4808**. Revue Hort. 3. 341 & t. Fl. des Serres, 11. 77, t. **1113**. Torrey, Pac. R. Rep. 4. 86. Newberry, Pac. R. Rep. 6. 73. Kellogg, Proc. Calif. Acad. 1. 64. Baill. Hist. Pl. 1. 292, f. **312–313**. Boland. Cat. 11. Brew. & Wats. Bot. Calif. 1. 191.

MAGNOLIACEÆ.

ILLICIUM Floridanum. Ellis, Phil. Trans. 60. 524, t. **12**. Linn. Mant. 1. 395 Lam. Dict. 1. 352; Ill. 3. 37, t. **493**, f. **1**. Gaert. Fruct. 1. 339, t. **69**. Ait. Hort. Kew. 2. 250. Bot. Mag. t. **439**. Michx. Fl. 1. 326. Nouv. Duham. 3. 190, t. **47**. Pursh, 380. Lodd. Bot. Cab. t. **209**. DC. Syst. 1. 441; Prodr. 1. 77. "Loisel. Herb. Amat. t. **171** b." Bigel. Am. Med. Bot. 3. 76, t. **48**. Spreng. Syst. 2. 643. Raf. Med. Bot. 2. 59, t. **54**. Don, Mill. 1. 79. Hook. Jour. Bot. 1. 183. Lindl. Fl. Med. 25. Paxton, Mag. Bot. 5. 147 & t. Torr. & Gray, Fl. 1. 42. Spach, Hist.

Veg. 7. 443. Dietr. Syn. 3. 310. Loud. Arbor. 1. 256, **f. 32.** Gray, Genera, 1. 56, **t. 21.** Schnizl. Icon. **t. 176, f. 22–27.** Chapman, 13. Wood, Cl.-Book, 213; Bot. & Fl. 24. Baill. Hist. Pl. 1. 555.

I. parviflorum. Vent. Hort. Cels. **t. 22.** Michx. Fl. 1. 326. Nouv. Duham. 3. 190. Poir. Suppl. 1. 558. Ait. f. Hort. Kew. 3. 328. Pursh, 380. Loisel. Herb. Amat. **t. 330.** DC. Syst. 1. 442; Prodr. 1. 77. Elliott, 2. 35. Spreng. Syst. 2. 644. Don, Mill. 1. 79. Torr. & Gray, Fl. 1. 42. Dietr. Syn. 3. 310. Loud. Arbor. 1. 259. Chapman, 13. Wood, Cl.-Book, 213; Bot. & Fl. 24. Baill. Hist. Pl. 1. 151, **f. 191–194.** Wright & Sauv. Fl. Cub. 2.

I. anisatum. Bartram, Trav. 24.

Cymbostemon parviflorus. Spach, Hist. Veg. 7. 443.

LIRIODENDRON Tulipifera. Linn. Spec. 535. Marsh. Arbust. 78. Walt. Fl. Car. 158. Ait. Hort. Kew. 2. 250. Gaert. Fruct. 2, **t. 178.** Bot. Mag. **t. 275.** Moench, Meth. 222. Schkuhr. Handb. 2. 93, **t. 147.** Willd. Spec. 2. 1254. Michx. Fl. 1. 326. Nouv. Duham. 3. 62, **t. 18.** Poir. Dict. 8. 137; Ill. 3. 86, **t. 491.** St. Hil. Pl. France, 3, **t. 377.** Kerner, Genera, **t. 1.** Michx. f. Arb. Am. 3. 202, **t. 5.** Pursh, 382. Barton, Med. Bot. **t. 8.** DC. Syst. 1. 462; Prodr. 1. 82. Bigel. Med. Bot. 2. 107, **t. 31.** James, Long's Exp. 3. 36. Elliott, 2. 40. Guimp. Otto & Hayne, **t. 29.** Spreng. Syst. 2. 642. Audubon, Birds, **t. 12.** Don, Mill. 1. 86. Lindl. Fl. Med. 23. Spach, Hist. Veg. 7. 488. Torr. & Gray, Fl. 1. 44. Dietr. Syn. 3. 309. Torr. Fl. N. Y. 1. 28. Loud. Arbor. 1. 284, **t. 13, 14.** Emerson, Trees of Mass. 529. Gray, Genera, 1. 64, **t. 25**; Manual, 50. Agardh, Syst. Pl. **t. 11, f. 2, 3.** Curtis, Bot. N. Car. 77. Chapman, 14. Lemaire, L'Ill. Hort. 15, **t. 571.** Baill. Hist. Pl. 1. 143, **f. 175–178.** Ridgway, Am. Naturalist, 6. 663.

L. procerum. Salisb. Prodr. 379.

MAGNOLIA acuminata. Linn. Spec. 2 ed. 756. Marsh. Arbust. 88. Walt. Fl. Car. 159. Ait. Hort. Kew. 2. 251. Lam. Dict. 3. 674. Willd. Spec. 2. 1257. Michx. Fl. 1. 328. Nouv. Duham. 2. 222. Michx. f. Arb. Am. 3. 82, **t. 3.** Pursh, 381. DC. Syst. 1. 453; Prodr. 1. 80. Lodd. Bot. Cab. **t. 418.** Bot. Mag. **t. 2427.** Elliott, 2. 37. Guimp. Otto & Hayne, **t. 17.** Spreng. Syst. 2. 642. Don, Mill. 1. 83. "Reich. Fl. Exot. **t. 251.**" Torr. & Gray, Fl. 1. 43. Dietr. Syn. 3. 308. Torr. Fl. N. Y. 1. 28. Loud. Arbor. 1. 273, **t. 7, 8. Curtis, Bot. N. Car. 67.** Chapman, 60. Gray, Manual, 49. Baill. Hist. Pl. 1. 140.

M. Virginiana, var. *c.* Linn. Spec. 536.

M. DeCandollii. "Savi, Bibl. Ital. 1. 224 & **t.**"

Tulipastrum Americanum. Spach, Hist. Veg. 7. 483.

M. cordata. Michx. Fl. 1. 328. Ait. f. Hort. Kew. 3. 331. Poir. Suppl. 3. 574. Michx. f. Arb. Am. 3. 87, **t. 4.** Pursh, 382. Bot. Reg. 4, **t. 325.** Nutt. Genera, 2. 18. DC. Syst. 1. 455; Prodr. 1. 80. Lodd. Bot. Cab. **t. 474.** Spreng. Syst. 2. 642. Don, Mill. 1. 83. "Reich. Fl. Exot. **t. 250.**" Torr. & Gray, Fl. 1. 43. Dietr. Syn. 3. 308. Loud. Arbor. 1. 275, **t. 9.** Curtis, Bot. N. Car. 68. Chapman, 14. Wood, Cl.-Book, 214; Bot. & Fl. 25.

Tulipastrum Americanum, var. *subcordatum.* Spach, Hist. Veg. 7. 483.

M. Fraseri. Walt. Fl. Car. 159, **t.** Torr. & Gray, Fl. 1. 43. Walp. Rep. 1. 70. Dietr. Syn. 3. 308. Curtis, Bot. N. Car. 68. Chapman, 14. Gray, Manual, 49. Wood, Bot. & Fl. 25.

M. auriculata. Lam. Dict. 3. 673. Bartram, Trav. 339. Willd. Spec. 2. 1258. Michx. Fl. 1. 328. Nouv. Duham. 2. 222. Andr. Bot. Rep. 9, **t. 573.** Bot. Mag. **t. 1206.** "Cubièr. Mem. Magn. & **t.**" Ait. f. Hort. Kew. 3. 332. Pursh, 382. Nutt. Genera, 2. 18; Sylv. 1. 84. DC. Syst. 1. 454; Prodr. 1. 80. Elliott, 2. 39.

Spreng. Syst. 2. 642. Audubon, Birds, t. **38**. Don, Mill. 1. 88. Hook. Jour. Bot. 1. 188. Spach, Hist. Veg. 7. 477. Loud. Arbor. 1. 276, t. **10**.

M. pyramidata. Bartr. Trav. 340. Pursh, 382. DC. Syst. 1. 454; Prodr. 1. 80. Bot. Reg. 5, t. **407**. Lodd. Bot. Cab. t. **1092**. Raf. Med. Bot. 2. 32. Don, Mill. 1. 83. Loud. Arbor. 1. 277, t. **11**.

M. auricularis. Salisb. Parad. Lond. 1, t. **43**. "Kerner, Hort. t. **360**."

M. glauca. Linn. Spec. 2. ed. 755. Marsh. Arbust. 83. Walt. Fl. Car. 158. Lam. Dict. 3. 674. Ait. Kew. 2. 251. Moench, Meth. 274. Willd. Spec. 2. 1256. Schkuhr, Handb. 2. 1441, t. **148**. Michx. Fl. 1. 327. Nouv. Duham. 2. 223, t. **66**. Bonpl. Pl. Malm. 103, t. **42**. Michx. f. Arb. Am. 3. 77, t. **2**. Pursh, 381. Bigel. Fl. Bost. 139; Med. Bot. 2. 67, t. **27**. Barton, Med. Bot. t. **7**. Lodd. Bot. Cab. t. **215**. DC. Syst. 1. 452; Prodr. 1. 80. Bot. Mag. t. **2164**. Spreng. Syst. 2. 642. Audubon, Birds, t. **118**. Don, Mill. 1. 82. Hook. Jour. Bot. 1. 188. "Reich. Fl. Exot. 5. 37, t. **342**." Lindl. Fl. Med. 28. Torr. & Gray, Fl. 1. 42. Spach, Hist. Veg. 7. 478. Dietr. Syn. 3. 308. Torrey, Fl. N. Y. 1. 27, t. **5**. Loud. Arbor. 1. 267, t. **3, 4**. Emerson, Trees Mass. 527. Gray, Genera, 1. 61, t. **23**; Struct. Bot. 381, f. **651–653**; Manual, 49. Schnizl. Icon. t. **176, figs.** Curtis, Bot. N. Car. 66. Chapman, 13. Lesqx. Fl. Ark. 347.

M. Virginiana, var. *a. glauca.* Linn. Spec. 535.

M. fragrans. Salisb. Prodr. 379. Raf. Fl. Lud. 91; Med. Bot. 2. 32.

M. longifolia. Sweet, Hort. Brit. 11. Don, Mill. 1. 83. Dietr. Syn. 3. 308.

Var. **pumila.** Nutt. in Am. Jour. Sci. 5. 295.

M. grandiflora. Linn. Spec. 2 ed. 755. Marsh. Arbust. 84. Am. Gewach. t. **185, 186**. Walt. Fl. Car. 158. Gaertn. Fruct. 1. 343, t. **70**. Ait. Hort. Kew. 2. 251. Bartr. Trav. 85. Lam. Dict. 3. 672; Ill. 3. 35, t. 490. Moench, Meth. 274. Willd. Spec. 2. 1255. Michx. Fl. 1. 327. Nouv. Duham. 2. 219, t. **65**. Andr. Bot. Rep. 8, t. **518**. Michx. f. Arb. Am. 3. 71, t. **1**. Pursh, 380. Bot. Mag. t. **1952**. DC. Syst. 1. 450; Prodr. 1. 80. Elliott, 2. 36. Lodd. Bot. Cab. t. **814**. Spreng. Syst. 2. 642. Audubon, Birds, t. **5** & **32**. Don, Mill. 1. 82. Croom, Am. Jour. Sci. 1. 26. 314. Hook. Jour. Bot. 1. 188. Torr. & Gray, Fl. 1. 42. Spach, Hist. Veg. 7. 470. Nutt. Sylva, 1. 81. Dietr. Syn. 3. 308. Loud. Arbor. 1. 261, t. **1, 2**. Curtis, Bot. N. Car. 66. Chapman, 13. Wood, Cl.-Book, 214; Bot. & Fl. 24. Baill. Hist. Pl. 1. 133, f. **165–169**. Gray, Hall's Pl. Tex. 3.

M. Virginiana, var. *β. fœtida.* Linn. Spec. 536, in part.

M. macrophylla. Michx. Fl. 1. 327. Nouv. Duham. 2. 221. Ait. f. Hort. Kew. 3. 331. Poir. Suppl. 3. 573. Michx. f. Arb. Am. 3. 99, t. **7**. Bonpl. Pl. Malm. 84, t. **33**. Pursh, 381. Nutt. Genera, 2. 18; Sylva, 1. 83. DC. Syst. 1. 454; Prodr. 1. 80. Bot. Mag. t. **2189**. Elliott, 2. 40. Spreng. Syst. 2. 642. Raf. Med. Bot. 2. 31, f. **62**. Don, Mill. 1. 83. Croom, Am. Jour. Sci. 1. 25. 76. "Reich. Fl. Exot. 2. 44, t. **139**." Torr. & Gray, Fl. 1. 43. Spach, Hist. Veg. 7. 479. Dietr. Syn. 3. 308. Loud. Arbor. 1. 271, t. **6**. Curtis, Bot. N. Car. 67. Chapman, 14. Gray, Manual, 49. Wood, Bot. & Fl. 25.

M. Umbrella. Lam. Dict. 3. 673. Nouv. Duham. 2. 221. DC. Syst. 1. 452; Prodr. 1. 80. "Loisel. Herb. Amat. 3. t. **198**." Spreng. Syst. 2. 642. Don, Mill. 1. 83. Torr. & Gray, Fl. 1. 43. Spach, Hist. Veg. 7. 475. Dietr. Syn. 3. 308. Gray, Genera, 1. 62, t. **24**; Jour. Linn. Soc. 2. 106, f. **1–18**. Manual, 49. Curtis, Bot. N. Car. 67. Chapman, 13.

M. Virginiana, var. *δ. tripetala.* Linn. Spec. 536.

M. tripetala. Linn. Spec. 2 ed. 756. Marsh. Arbust. 84. Walt. Fl. Car. 159. Ait. Hort. Kew. 2. 252. Willd. Spec. 2. 1258. Michx. Fl. 1. 327. Michx. f. Arb.

Am. 3. 90, t. 5. Pursh, 381. Guimp. Otto & Hayne, t. 18. Elliott, 2. 38. Loud. Arbor. 1. 269, t. 5.

M. frondosa. Salisb. Prodr. 379.

SCHIZANDRA coccinea. Michx. Fl. 2. 219, t. 47. Poir. Dict. 6. 729; Ill. 3. 710, t. 995. Willd. Spec. 4. 372. "Desf. Hist. Arb. 2. 25." Bot. Mag. t. 1413. Ait. f. Hort. Kew. 5. 268. Pursh, 382. Nutt. Genera, 2. 209. DC. Syst. 1. 544; Prodr. 1. 104. Bart. Fl. N. Am. t. 13. Elliott, 2. 582. Spreng. Syst. 1. 972. Audubon, Birds, t. 74. Don, Mill. 1. 101. Torr. & Gray, Fl. 1. 44 & 662. Spach, Hist. Veg. 8. 11. Dietr. Syn. 2. 1037. Loud. Arbor. 1. 295, f. 41. Gray, Genera, 1. 58, t. 22. Chapman, 13. Wood, Cl.-Book, 216; Bot. & Fl. 25. Maout & Decne. 378, figs. Baill. Hist. Pl. 1. 146, f. 179–181.

ANONACEÆ.

ASIMINA grandiflora. Dunal, Monog. Anon. 84, t. 11. "Loisel. Herb. Amat. 4, t. 263." DC. Syst. 1. 480; Prodr. 1. 86. Elliott, 2. 42. Spreng. Syst. 2. 639. Don, Mill. 1. 92. Dietr. Syn. 3. 304. Loud. Arbor. 1. 294. Chapman, 15. Wood, Cl.-Book, 215; Bot. & Fl. 26.

Annona grandiflora. Bartr. Trav. 20 & 171, t. 2.

Annona obovata. Willd. Spec. 2. 1269.

Orchidocarpum grandiflorum. Michx. Fl. 1. 330.

Porcelia grandiflora. Persoon, 2. 95. Pursh, 383. Poir. Suppl. 4. 529. Nutt. Genera, 2. 19.

Uvaria obovata. Torr. & Gray, Fl. 1. 45.

A. parviflora. Dunal, Monog. 82, t. 9. DC. Syst. 1. 479; Prodr. 1. 87. Elliott, 2. 41. Spreng. Syst. 2. 639. Don, Mill. 1. 91. Hook. Jour. Bot. 1. 183. Dietr. Syn. 3. 304. Loud. Arbor. 1. 293. Curtis, Bot. N. Car. 94. Chapman, 15. Wood, Cl.-Book, 215; Bot. & Fl. 26.

Orchidocarpum parviflorum. Michx. Fl. 1. 329.

Porcelia parviflora. Persoon, 2. 95. Pursh, 383. Poir. Suppl. 4. 529.

Uvaria parviflora. Torr. & Gray, Fl. 1. 45.

A. pygmæa. Dunal, Monog. 84, t. 10. DC. Syst. 1. 480; Prodr. 1. 87. Elliott, 2. 43. Spreng. Syst. 2. 639. Don, Mill. 1. 92. Dietr. Syn. 3. 304. Loud. Arbor. 1. 294, f. 40. Chapman, 15. Wood, Cl.-Book, 216; Bot. & Fl. 26.

Annona pygmæa. Bartr. Trav. 18, t. 1. Willd. Spec. 2. 1268.

Orchidocarpum pygmæum. Michx. Fl. 1. 330.

Porcelia pygmæa. Persoon, 2. 95. Pursh, 383. Poir. Suppl. 4. 529. Nutt. Genera, 2. 19.

Uvaria pygmæa. Torr. & Gray, Fl. 1. 45.

A. triloba. Dunal, Monog. 83. DC. Syst. 1. 479; Prodr. 1. 87. Elliott, 2. 42. Guimp. Otto & Hayne, t. 53. Spreng. Syst. 2. 639. Torrey, Ann. Lyc. N. Y. 2. 165. Don, Mill. 1. 91. Nutt. Jour. Acad. Philad. 7. 11. Dietr. Syn. 3. 304. Loud. Arbor. 1. 293, f. 39. Gray, Genera, 1. 68, t. 26, 27; Struct. Bot. 382, f. 654–658; Manual, 50. Parry, Pl. Minn. 609. Curtis, Bot. N. Car. 94. Lesqx. Fl. Ark. 347. Chapman, 15. Maout & Decne. 384, figs. Hook. Bot. Mag. t. 5854.

Annona triloba. Linn. Spec. 537. Marsh. Arbust. 10. Lam. Dict. 2. 125. Walt. Fl. Car. 158. Ait. Hort. Kew. 2. 254. Willd. Spec. 2. 1267. Nouv. Duham. 2. 83, t. 25. Michx. f. Arb. Am. 3. 161, t. 9. Schkuhr, Handb. 2. 95, t. 149.

Orchidocarpum arietinum. Michx. Fl. 1. 329.

Porcelia triloba. Persoon, 2. 95. Pursh, 383. Poir. Suppl. 4. 529. Audubon, Birds, t. **2** & **162.**

Uvaria triloba. Torr. & Gray, Fl. 1. 45. Torr. Fl. N. Y. 1. 30. Baill. Hist. Pl. 1. 193, f. **220–228.**

Asimina campaniflora (and *conoidea*?). Spach, Hist. Veg. 7. 529.

ANONA glabra. Linn. Spec. 537. Marsh. Arbust. 10; and others. Not in the United States, f. Torr. & Gray, Fl. 1. 44, and suppressed by Grisebach, Fl. Br. W. Ind. 5.

A. laurifolia. Dunal, Monog. 65. DC. Syst. 1. 468; Prodr. 1. 84. Spreng. Syst. 2. 641. Lindl. Bot. Reg. 16, t. **1328.** Griseb. Fl. Br. W. Ind. 4. Cooper, Smithson. Rep. 1860, 439.

MENISPERMACEÆ.

CALYCOCARPUM Lyoni. Nutt. in Torr. & Gray, Fl. 1. 48. Gray, Genera, 1. 76, t. **30**; Manual, 52. Miers, Monog. Menisp. in Ann. Sci. Nat. 3. 13. 130; Contrib. Bot. 3. 25, t. **89.** Walp. Ann. 2. 20. Chapman, 16.

Menispermum Lyoni. Pursh, 371. Poir. Suppl. 5. 731. DC. Syst. 1. 541; Prodr. 1. 103. James, Long's Exp. 1. 317 & 3. 33. Spreng. Syst. 2. 157. Torrey, Ann. Lyc. N. Y. 2. 165. Don, Mill. 1. 112. Torr. & Gray, Fl. 1. 48. Baill. Hist. Pl. 3. 13 & 39.

COCCULUS Carolinus. DC. Syst. 1. 524; Prodr. 1. 98. Don, Mill. 1. 107. Hook. Jour. Bot. 1. 188. Torr. & Gray, Fl. 1. 47. Loud. Arbor. 1. 298, f. **45.** Gray, Genera, 1. 72, t. **28**; Pl. Wright, 1. 7 & 2. 9; Manual, 16; Hall's Pl. Tex. 3. Engelm. & Gray, Pl. Lindh. 3 & 31. Seem. Bot. Herald, 268. Torrey, Mex. Bound. 30. Curtis, Bot. N. Car. 118. Chapman, 51. Miers, Contrib. Bot. 3. 253, t. **110.** Baill. Hist. Pl. 3. 2, f. **2–4.**

Menispermum Carolinum. Linn. Spec. 340. Marsh. Arbust. 86. Ait. Hort. Kew. 3. 412. Lam. Dict. 4. 97. Willd. Spec. 4. 825. Michx. Fl. 2. 242. Spreng. Syst. 2. 156.

M. Carolinianum. Hill, Veg. Syst. 16, t. **27**, f. **1.** Walt. Fl. Car. 248.

Baumgartia scandens. Moench, Meth. 650.

Androphylax scandens. Wendl. Bot. Beobacht. 38; "Hort. Herrenh. 3, t. **16.**"

Wendlandia populifolia. Willd. Spec. 2. 275. Poir. Dict. 8. 796. Persoon, 1. 400. Pursh, 252.

W. Caroliniana. Nutt. Genera, 1. 241. Curtis in Bost. Jour. Nat. Hist. 1. 118.

Cocculidium populifolium. Spach, Hist. Veg. 8. 17.

Var. **hederaceæfolius.** Miers, Contrib. Bot. 3. 254.

Menispermum Virginicum. Linn. Spec. 340. Marsh. Arbust. 86. Walt. Fl. Car. 248. Lam. Dict. 4. 95. Willd. Spec. 4. 824. Ait. f. Hort. Kew. 5. 404. Maout & Decne. 372, **figs.**

C. oblongifolius. DC. Syst. 1. 529; Prodr. 1. 99. Don, Mill. 1. 108. Presl, Rel. Hænk. 2. 79. Seem. Bot. Herald, 268. Miers, Contrib. Bot. 3. 256.

C. sagittæfolius. Miers, Contrib. Bot. 3. 255.

MENISPERMUM Canadense. Linn. Spec. 340. Hill, Veg. Syst. 16, t. **28**, f. **2.** Medicus, Bot. Beob. 1782, 237. Marsh. Arbust. 86. Ait. Hort. Kew. 3. 411. Lam. Dict. 4. 95; Ill. 3. 412, t. **824.** Michx. Fl. 2. 241. Willd. Spec. 4. 824.

Pursh, 370. Bot. Mag. t. **1910**. DC. Syst. 1. 540; Prodr. 1. 102. Schkuhr, Handb. 3, t. **337**. James, Long's Exp. 1. 317. Elliott, 2. 715. Spreng. Syst. 2. 157. Hook. Fl. Bor.-Am. 1. 28. Don, Mill. 1. 112. Torr. & Gray, Fl. 1. 48; Pac. R. Rep. 2. 125. Spach, Hist. Veg. 8. 20, t. **62**, f. **2**. Torrey, Fl. N. Y. 1. 31; Nicol. Rep. 144; Frem. Rep. 87; Emory's Rep. 406. Loud. Arbor. 1. 296, f. **42**. Emerson, Mass. Trees, 525. Gray, Genera, 1. 74, t. **29**; Pac. R. Rep. 12. 40; Struct. Bot. 383, f. **659–666**; Manual, 51. Parry, Pl. Minn. 609. Schnizl. Icon. t. **172**, f. **1–15**. Curtis, Bot. N. Car. 118. Chapman, 16. Pl. Bourgeau, 254. Miers, Contrib. Bot. 3. 115. Maout & Decne. 372, figs.

Cissampelos Smilacina. Linn. Spec. 2 ed. 1473. Ait. Hort. Kew. 3. 416. Jacq. Coll. 4. 128; Icon. Rar. 3. 20, t. **629**. Willd. Spec. 4. 863.

Menispermum angulatum. Moench, Meth. 277.

M. smilacinum. DC. Syst. 1. 541; Prodr. 1. 108. Elliott, 2. 716. Don, Mill. 1. 112. Loud. Arbor. 1. 297, f. **44**.

BERBERIDACEÆ.

ACHLYS triphylla. DC. Syst. 2. 35; Prodr. 1. 112. Hook. Fl. Bor.-Am. 1. 30, t. **12**. Don, Mill. 1. 120. Torr. & Gray, Fl. 1. 53; Bot. Wilkes, 219. Newberry, Pac. R. Rep. 6. 66. Cooper, same, 12. 56. Boland. Cat. 4. Gray, Proc. Am. Acad. 8. 376.

Leontice triphylla. Smith, Rees Cyc. n. 5. Schult. Syst. 7. 21. Dietr. Syn. 2. 1073.

BERBERIS Aquifolium. Pursh, t. **4**, f. **1** (leaf). Hook. Fl. Bor.-Am. 1. 29. Schult. Syst. 7. 18 & 1616. Lindl. Bot. Reg. t. **1425**; Jour. Hort. Soc. 5. 16 (Fl. des Serres, 6. 77). Lodd. Bot. Cab. t. **1718**. Don, Mill. 1. 118. Schrad. in Linn. 12. 388. Spach, Hist. Veg. 8. 51. Hook. & Arn. Bot Beechey, 134 & 318. Torrey, Pac. R. Rep. 4. 63; Bot. Wilkes, 218. Cooper, Pac. R. Rep. 12. 30 & 55. Wood, Cl.-Book, 218; Bot. & Fl. 27. Boland. in Proc. Calif. Acad. 3. 78; Cat. 4. Brew. & Wats. Bot. Calif. 1. 14. See under *B. repens.*

Mahonia fascicularis. DC. Syst. 1. 19, and others, as to Nootka locality.

M. aquifolium, β. Nutkana. DC. Prodr. 1. 109.

Berberis pinnata. Ker, Bot. Reg. t. **702**; not Lag. Hook. Fl. Bor.-Am. 1. 28. Schrad. in Linnæa, 12. 387.

B. fascicularis. Sims, Bot. Mag. t. **2396**. Spreng. Syst. 2. 120. Schult. Syst. 7. 17 & 1615.

Mahonia diversifolia. Sweet, Brit Fl. Gard. 2 ser. t. **94**.

Berberis Aquifolium, vars. β. & γ. Torr. & Gray, Fl. 1. 50.

Mahonia Aquifolium. Paxton, Mag. Bot. 9. 5, & t. Loud. Arbor. 1. 309, f. **57**.

B. Canadensis. Pursh, 219. Nutt. Genera, 1. 216. Elliott, 1. 412. DC. Syst. 2. 7; Prodr. 1. 106. Spreng. Syst. 2. 119. Schult. Syst. 7. 3. Don, Mill. 1. 115, in part. Audubon, Birds, t. **188**. Torr. & Gray, Fl. 1. 50. Dietr. Syn. 2. 1071. Loud. Arbor. 1. 303, f. **48**. Gray, Genera, 1. 80, t. **31**; Manual, 53. Curtis, Bot. N. Car. 84. Chapman, 17.

B. vulgaris. Walter, 120. Michx. Fl. 1. 205.

B. vulgaris, var. *Canadensis.* Ait. Hort. Kew. 1. 479. Willd. Spec. 2. 227. Nouv. Duham. 4. 12. Desf. Arb. 2. 27. Poir. Dict. 8. 616. Wood, Cl.-Book, 218.

B. Canadensis, serrulata & pisifera. Raf. Fl. Tellur. 68.

B. vulgaris, var. *cratægina.* Hook. f. & Thomp. Fl. Ind. 1. 220, with syn.

B. vulgaris, var. *commutata.* Regel, Act. Hort. Petrop. 2. 413, with syn.

B. Sinensis, & var. *Canadensis.* Regel, l. c. 2. 416, with syn.

B. Fendleri. Gray, Pl. Fendl. 5. Walp. Ann. 2. 23. Torrey, Pac. R. Rep. 4. 64. Brandegee, Fl. S. W. Col. 233.

B. Fremonti. Torrey, Mex. Bound. 30. Gray, Ives's Rep. 5. Watson, King's Rep. 5. 416. Parry, Am. Naturalist, 9. 141 & 268.

B. trifoliata. Torrey, Pac. R. Rep. 4. 63, in part.

B. nervosa. Pursh, 219, **t. 5**, excl. fls. Poir. Suppl. 5. 480. Spreng. Syst. 2. 120. Schult. Syst. 7. 18 & 1616. Hook. Fl. Bor.-Am. 1. 29. Sweet, Br. Fl. Gard. 2 ser. **t. 171.** Torr. & Gray, Fl. 1. 51. Spach, Hist. Veg. 8. 54. Eat. & Wr. 156. Dietr. Syn. 2. 1072. Bot. Mag. **t. 3949.** Fl. des Serres, 2, **t. 4.** Cooper, Pac. R. Rep. 12. 56. Torrey, Bot. Wilkes, 218. Brew. & Wats. Bot. Calif. 1. 15.

Mahonia nervosa. Nutt. Genera, 1. 212. DC. Syst. 2. 20; Prodr. 1. 108. Don, Mill. 1. 118. Loud. Arbor. 1. 310, **f. 58.**

M. glumacea. DC. Syst. 1. 21; Prodr. 1. 109. Paxton, Mag. Bot. 7. 55, & **t.**

Berberis glumacea. Spreng. Syst. 2. 120. Schult. Syst. 7. 19. Lindl. Bot. Reg. **t. 1426.** Lodd. Bot. Cab. **t. 1701.** Dietr. Syn. 2. 1072. Lindl. Journ. Hort. Soc. 5. 18 (Fl. des Serres, 6. 77). Newberry, Pac. R. Rep. 6. 66. The Garden, 5. 34.

B. pinnata. Lagasca, Elench. Pl. Matr. 1803, 6; Gen. & Spec. 14. Torr. & Gray, Fl. 1. 51. Spach, Hist. Veg. 8. 50. Torrey, Emory's Rep. 136; Sitgr. Rep. 155; Pac. R. Rep. 4. 63. Benth. Pl. Hartw. 296. Gray, Pl. Thurb. 300. Boland. Cat. 4. Brew. & Wats. Bot. Calif. 1. 15.

Mahonia fascicularis. DC. Syst. 2. 19, & Prodr. 1. 108, in part. Deless. Icon. Sel. 2. 2, **t. 3** ?

B. repens. Lindl. Bot. Reg. **t. 1176**; Journ. Hort. Soc. 5. 17 (Fl. des Serres, 6. 77). Lodd. Bot. Cab. **t. 1847.** Spach, Hist. Veg. 8. 53. Brew. & Wats. Bot. Calif. 1. 14. The Garden, 5. 34.

B. Aquifolium. Pursh, 219, **t. 4**, excl. f. 5 & leaf. Poir. Suppl. 5. 480. DC. Syst. 2. 20. Spreng. Syst. 2. 120. Torr. & Gray, Fl. 1. 50, excl. vars. Dietr. Syn. 2. 1072. Walp. Rep. 1. 103. Torrey, Frem. Rep. 87; Stansb. Rep. 383; Mex. Bound. 30. Hook. in Lond. Jour. Bot. 6. 68. Gray, Pl. Fendl. 5; Ives's Rep. 5. Durand, Pl. Pratten. 80; Fl. Utah, 158. Newberry, Pac. R. Rep. 6. 66. Pl. Bourgeau, 254. Watson, King's Rep. 5. 15. Porter, Hayd. Rep. 1871, 478; Fl. Col. 5. Coulter, Hayd. Rep. 1872, 759.

B. nervosa. Pursh, **t. 5** (fls.).

B. pinnata. Muhl. Cat. 2 ed. 36. Eaton, Manual, 5 ed. 134.

Mahonia Aquifolium. Nutt. Genera, 1. 212; Jour. Acad. Philad. 7. 11. James, Cat. 178. Torrey, Ann. Lyc. N. Y. 2. 165. DC. Prodr. 1. 108. Sweet, Br. Fl. Gard. 2 ser., under t. 94.

Odostemon Aquifolium. Raf. in Am. Mag. 1819, 192; Med. Fl. 2. 247.

Mahonia repens. Don, Mill. 1. 118. Loud. Arbor. 1. 311, **f. 59.**

Berberis Aquifolium, var. *repens.* Torrey, Pac. R. Rep. 4. 63. Gray, Am. Jour. Sci. 2. 33. 407; Jour. Acad. Philad. 1863, 57.

B. Swaseyi. Buckley in Young's Fl. Tex. 152.

B. trifoliolata. Moric. Pl. Nouv. Am. 113, **t. 69.** Walp. Ann. 1. 21. Gray, Pl. Lindh. 2. 142; Hall's Pl. Tex. 3. Engelm. in Wisliz. Rep. 25. Paxton, Fl. Gard. 2. 68, **f. 168.** Torr. & Gray, Pac. R. Rep. 2. 159. Torrey, Mex. Bound. 31.

B. trifoliata. Hartw.; Lindl. Bot. Reg. 27, Misc. 68, & 31, **t. 10**; Jour. Hort. Soc. 5. 14 (Fl. des Serres, 6. 76). Walp. Rep. 2. 749. Fl. des Serres, 1, **t. 56.**

B. ilicifolia & *Roemeriana*. Scheele, Linn. 21. 593 & 22. 154.

B. VULGARIS, Linn. See syn. in DC. Syst. 2. 5; Hook. f. & Thomp. Fl. Ind. 1. 220; Regel, Trud. Petr. Bot. Cada, 2. 410. — Bigel. Fl. Bost. 78. Hook. Fl. Bor.-Am. 1. 28. Torr. & Gray, Fl. 1. 49. Torrey, Fl. N. Y. 1. 33. Emerson, Mass. Trees, 521. Richards. Arct. Exped. 422. Gray, Struct. Bot. 384, f. **668–676**; Manual, 53.

B. Canadensis. Marsh. Arbust. 17. Raf. Med. Fl. 1. 82, f. **15**.

B. vulgaris, var. *Canadensis*. Torrey, Fl. U. S. 336.

B. crenulata, macracantha & *laxiflora*. Schrad. in Linn. 12. 362, 366 & 367.

CAULOPHYLLUM thalictroides. Michx. Fl. 1. 205, t. **21**. Persoon, 1. 387. Willd. Enum. 1. 372. Poir. Suppl. 2. 140. Pursh, 218. Nutt. Genera, 1. 210. Elliott, 1. 411. Barton, Fl. Phil. 1. 160. Darling. Fl. Cestr. 89. Raf. Med. Fl. 1. 97, f. **19**. Spach, Hist. Veg. 8. 69. Schnizl. Icon. t. **179 a**, f. **1–8**. Chapman, 17. Gray, Manual, 53. Maout & Decne. 377, figs.

Leontice thalictroides. Linn. Spec. 312. Ait. Hort. Kew. 1. 451. Lam. Dict. 3. 465. Willd. Spec. 2. 449. R. Br. in Trans. Linn. Soc. 12. 145, t. **7**. Smith, Rees Cyc. n. 4. DC. Syst. 2. 27; Prodr. 1. 110. Torrey, Fl. U. S. 336; Fl. N. Y. 1. 33; Nicol. Rep. 144. Lodd. Bot. Cab. t. **1473**. Spreng. Syst. 2. 121. Schult. Syst. 7. 22. Hook. Fl. Bor.-Am. 1. 29. Don, Mill. 1. 119, f. **32**. Darling. Fl. Cestr. 2 ed. 213. Torr. & Gray, Fl. 1. 52. Dietr. Syn. 2. 1073. Gray, Genera, 1. 82, t. **32**; Manual, 1 ed. 21. Parry, Pl. Minn. 609. Baill. Hist. Pl. 3. 54.

Leontopetalon thalictroides. Hill, Veg. Syst. 16, t. **26**, f. **3**.

DIPHYLLEIA cymosa. Michx. Fl. 1. 203, t. **19**, **20**. Poir. Suppl. 2. 488. Sims, Bot. Mag. t. **1666**. Pursh, 218. Nutt. Genera, 1. 209. Elliott, 1. 411. DC. Syst. 2. 30; Prodr. 1. 110. Spreng. Syst. 2. 121. Schult. Syst. 7. 52. Decne. in Ann. Sci. Nat. 2. 2. 359. Don, Mill. 1. 120. Torr. & Gray, Fl. 1. 53. Dietr. Syn. 2. 1073. Gray, Am. Jour. Sci. 1. 42. 23 (Lond. Jour. Bot. 1. 230); Genera, 1. 84, t. **33**; Manual, 53. Chapman, 17. Agardh, Theor. Syst. t. **5**, f. **10**. Baill. Hist. Pl. 3. 60.

JEFFERSONIA diphylla. Persoon, 1. 418. Bot. Mag. t. **1513**. Poir. Suppl. 3. 136. Pursh, 268. Nutt. Genera, 1. 253. DC. Syst. 2. 35; Prodr. 1. 111. Torrey, Fl. U. S. 399; Fl. N. Y. 1. 34. Spreng. Syst. 2. 227. Don, Mill. 1. 121. Torr. & Gray, Fl. 1. 53. Lodd. Bot. Cab. t. **1036**. Dietr. Syn. 2. 1284. Gray, Genera, 1. 86, t. **34**; Manual, 54. Schnizl. Icon. t. **179 a**, f. **13–16**. Chapman, 18. Baill. Hist. Pl. 3. 60, f. **72**, **73**.

Podophyllum diphyllum. Linn. Spec. 505. Hill, Veg. Syst. 16, t. **32**, f. **2**. Willd. Spec. 2. 1141. Poir. Dict. 5. 446. Ait. f. Hort. Kew. 3. 287.

Jeffersonia binata. Barton, Trans. Phil. Soc. 3. 342, & t.

J. Bartonis. Michx. Fl. 1. 237. Raf. Med. Fl. 2. 11, f. **55**.

J. lobata. Nutt. Jour. Acad. Philad. 7. 99. Raf. Med. Fl. 2. 11.

J. odorata. Raf. Med. Fl. 2. 11.

PODOPHYLLUM peltatum. Linn. Spec. 505. Hill, Veg. Syst. 16, t. **32**, f. **1**. Ait. Hort. Kew. 2. 223. Willd. Spec. 2. 1141. Michx. Fl. 1. 309. Poir. Dict. 5. 446; Lam. Ill. 3. 15, t. **449**. Tratt. Arch. 2, t. **99**; Obs. 2. 63. Pursh, 366. Bigel. Fl. Bost. 132; Med. Bot. 2. 84, t. **23**, & 3. 186. Bot. Mag. t. **1819**. Nutt. Genera, 2. 10. DC. Syst. 2. 34; Prodr. 1. 111. Elliott, 2. 14. Barton, Fl. Philad. 2. 9. Spreng. Syst. 2. 604. Audubon, Birds, t. **64**. Hook. Fl. Bor.-Am. 1. 31. Don, Mill. 1. 120, f. **33**. Lindl. Fl. Med. 13. Torr. & Gray, Fl. 1. 54 & 663. Spach, Hist. Veg. 8. 70. Dietr. Syn. 3. 261. Torrey, Fl. N. Y. 1. 35; Emory's Rep. 406. Gray, Genera, 1. 88, t. **35**, **36**; Pac. R. Rep. 12. 40; Manual, 54; Am.

Naturalist, 1. 494. Parry, Pl. Minn. 609. Schnizl. Icon. t. 179 *, f. 17–26. Chapman, 18. Lesqx. Fl. Ark. 347. Baill. Hist. Pl. 3. 58, f. 70, 71.

Anopodophyllum peltatum. Moench, Meth. 277.

P. callicarpum. Raf. Fl. Lud. 14; Med. Fl. 2. 69. DC. Syst. 2. 84; Prodr. 1. 111. Spreng. Syst. 2. 604. Don, Mill. 1. 121.

P. montanum. Raf. Med. Fl. 2. 59, f. 73.

VANCOUVERIA hexandra. Morr. & Decne. Ann. Sci. Nat. 2. 2. 351. Torr. & Gray, Fl. 1. 52. Torrey, Pac. R. Rep. 4. 63; Bot. Wilkes, 219. Boland. Cat. 4. Gray, Proc. Am. Acad. 8. 375. Brew. & Wats. Bot. Calif. 1. 15.

Epimedium hexandrum. Hook. Fl. Bor.-Am. 1. 30, t. 13. Don, Mill. 1. 120. Hook. & Arn. Bot. Beechey, 318. Baill. Hist. Pl. 3. 56.

Sculeria geminata. Raf. Fl. Tell. 2. 50.

NYMPHÆACEÆ.

BRASENIA peltata. Pursh, 389. Nutt. Genera, 2. 24; Fl. Ark. 160. Elliott, 2. 66. Gray, Ann. Lyc. N. Y. 4. 46; Genera, 1. 96, t. 39; Struct. Bot. 387, f. 681–687; Mem. Am. Acad. 2. 6. 449; Manual, 55. Torr. & Gray, Fl. 1. 55. Torrey, Fl. N. Y. 1. 36; Bot. Wilkes, 220. Dietr. Syn. 3. 291. Engelm. & Gray, Pl. Lindh. 32. Hook. f. & Thomp. Fl. Ind. 1. 246. Chapman, 19. Benth. Fl. Austr. 1. 60. Miquel, Ann. Mus. Lugd.-Bat. 3. 92. Welwitsch, Sert. Angol. 26. Boland. Cat. 4.

Menyanthes peltata & nymphoides. Thunb. Nov. Act. Ups. 7. 142, t. 4, f. 2, & Fl. Jap. 82.

Hydropeltis purpurea. Michx. Fl. 1. 324, t. 29. Bot. Mag. t. 1147. Ait. f. Hort. Kew. 3. 362. Poir. Suppl. 3. 78. Richard, Ann. Mus. Par. 17. 230, t. 5, f. 22. DC. Syst. 2. 38; Prodr. 1. 112. Hook. Fl. Bor.-Am. 1. 31; Jour. Bot. 1. 189. Don, Mill. 1. 122, f. 34. Spach, Hist. Veg. 7. 162. Schnizl. Icon. t. 186, f. 2, 3, 19–25.

Hydropeltis pulla. Salisb. in Ann. Bot. 2. 74.

Brasenia Hydropeltis. Muhl. Cat. 55. Raf. Med. Fl. 1. 90, f. 17.

Villarsia peltata. Roem. & Schult. Syst. 4. 178.

Limnanthemum peltatum. Griseb. Gent. 348; DC. Prodr. 9. 141. Planch. in Ann. Sci. Nat. 4. 2. 257.

Brasenia nymphoides. Baill. Hist. Pl. 3. 82.

CABOMBA Caroliniana. Gray, Ann. Lyc. N. Y. 4. 46; Genera, 1. 94, t. 38; Hall's Pl. Tex. 5. Torr. & Gray, Fl. 1. 55. Walp. Rep. 1. 105. Hook. Icon. t. 642. Chapman, 19. Wood, Cl.-Book, 219; Bot. & Fl. 39. Maout & Decne. 401 & 402, figs. Ridgway, Am. Naturalist, 6. 726.

C. Aubletii. Michx. Fl. 1. 206.

Nectris peltata. Pursh, 239, excl. syn.

N. aquatica. Nutt. Genera, 1. 230, not Willd. Elliott, 1. 416.

Cabomba aquatica. DC. Syst. 2. 36. Schult. Syst. 7. 1378, and Don, Mill. 1. 121, in part. Hook. Jour. Bot. 1. 189.

NELUMBIUM luteum. Willd. Spec. 2. 1259. Michx. Fl. 1. 317. Turpin, Ann. Mus. Par. 7. 210, t. 11, f. 27. Poiteau, same, 18. 395, t. 29, f. 42–46. Poir. Suppl. 4. 78. DC. Syst. 2. 47; Prodr. 1. 114. James, Long's Exp. 2. 96. Torrey, Ann. Lyc. N. Y. 2. 165. Raf. Med. Fl. 2. 41, f. 66. Don, Mill. 1. 124. Hook. Jour. Bot. 1. 189. Short, Pl. Kentucky, 389. Torr. & Gray, Fl. 1. 56. Bot. Mag.

t. 3753. Spach, Hist. Veg. 7. 183. Maund. Bot. 1, t. 14. Dietr. Syn. 3. 294. Torrey, Fl. N. Y. 1. 38. Gray, Genera, 1. 98, t. 40, 41; Manual, 55. Schnizl. Icon. t. 187, f. 3–6, 9–14. Chapman, 18. Engelm. Trans. Acad. St. Louis, 2. 136. Griseb. Fl. Br. W. Ind. 12. Maout & Decne. 402 & 403, figs. Young, Fl. Tex. 153.

Nymphæa Nelumbo, var. β. Linn. Spec. 511.

Nymphæa Nelumbo. Walt. Fl. Car. 155. Ait. Hort. Kew. 2. 227, in part. Bartr. Trav. 107. Salisb. Ann. Bot. 2. 76.

Nymphæa pentapetala. Walt Fl. Car. 155. Gmel. Syst. 812. Poir. Dict. 4. 458. Salisb. Ann. Bot. 2. 76.

Nelumbo Indica, var. β. Poir. Dict. 4. 454.

Nelumbium pentapetalum. Willd. Spec. 2. 1259. Poir. Suppl. 4. 78. DC. Syst. 2. 47; Prodr. 1. 114. Raf. Med. Fl. 2 42. Don, Mill. 1. 124.

Cyamus flavicomus. Salisb. in Ann. Bot. 2. 75. Pursh, 398.

Nelumbium speciosum. Ait. f. Hort. Kew. 3. 332, in part.

Cyamus pentapetalus. Pursh, 398. Elliott, 2. 68.

Nelumbium codophyllum. Raf. Fl. Lud. 22; Med. Fl. 2. 42. DC. Syst. 2. 47; Prodr. 1. 114. Don, Mill. 1. 124. Trécul, Bull. Soc. Bot. Fr. 1. 18 & 60; Ann. Sci. Nat. 4. 1. 291, t. 12–14.

Cyamus luteus. Nutt. Genera, 2. 25; Fl. Ark. 160. Bart. Fl. Phil. 2. 26; Fl. N. Am. 2. 77, t. 63. James, Cat. 183. Elliott, 2. 67.

Nelumbium Jamaicense. DC. Syst. 2. 47; Prodr. 1. 114.

Nelumbo lutea. Baill. Hist. Pl. 3. 79, f. 78–81.

NUPHAR advena. Ait. f. Hort. Kew. 3. 295. Pursh, 369. Smith, Rees Cyc. n. 4. Nutt. Genera, 2. 13; Fl. Ark. 160. DC. Syst. 2. 63; Prodr. 1. 116. Elliott, 2. 8. Bart. Fl. Phil. 2. 10. Hook. Fl. Bor.-Am. 1. 33; Jour. Bot. 1. 189. Don, Mill. 1. 127. Torr. & Gray, Fl. 1. 58. Spach, Hist. Veg. 7. 176. Dietr. Syn. 3. 265. Torrey, Fl. N. Y. 1. 40; Mex. Bound. 31; Bot. Wilkes, 220. Benth. Pl. Hartw. 296. Gray, Genera, 1. 104, t. 44; Manual, 57. Parry, Pl. Minn. 609. Planch. in Fl. des Serres, 8. 120; Ann. Sci. Nat. 3. 19. 62. Newberry, Pac. R. Rep. 6. 67. Cooper, Pac. R. Rep. 12. 56. Chapman, 20. Pl. Bourgeau, 254. Engelm. in Trans. Acad. St. Louis, 2. 283. Traill, Canad. Fl. 71, t. 8. Boland. Cat. 4. Watson, King's Rep. 5. 13. Porter, Hayd. Rep. 1871, 478. Coulter, same, 1872, 759.

Nymphæa lutea. Walt. Fl. Car. 154.

Nymphæa advena. Ait. Hort. Kew. 2. 226. Poir. Dict. 4. 457. Willd. Spec. 2. 1152; Hort. Berol. t. 38. Michx. Fl. 1. 311. Bot. Mag. t. 684. Bigel. Fl. Bost. 132. Torrey, Nicol. Rep. 144.

Nymphæa arifolia. Salisb. in Ann. Bot. 2. 71.

Nuphar Americana. Provancher, Fl. Canad. 1. 28.

Var. **variegatum.** Engelm.; Gray, Manual, 57.

Nuphar variegatum. Engelm.; Clinton in 19 Rep. Reg. N. Y. State Univ. 73.

N. luteum, Smith. See syn. in DC. Syst. 2. 60; Ledeb. Fl. Ross. 1. 84; Hook. f. Arct. Pl. 313. — Pursh, 369. Richards. Frankl. Journ. 12. Hook. Fl. Bor.-Am. 1. 32. Bong. Sitch. 124. Torr. & Gray, Fl. 1. 57. Ledeb. l. c. Hook. f. Arct. Pl. 284 & 313. Rothr. Fl. Alask. 442. Gray, Manual, 57.

N. polysepalum. Engelm. in Trans. Acad. St. Louis, 2. 282. Gray, Proc. Am. Acad. 8. 376; Torr. Bot. Wilkes, 220. Porter, Fl. Col. 5.

N. pumilum. Smith, Engl. Bot. t. 2292. DC. Syst. 2. 61, with syn. Planch. in Fl. des Serres, 8. 120; Ann. Sci. Nat. 3. 19. 60, with syn. Regel, Fl. Uss. 18, and syn. Caspary, Ann. Mus. Lugd.-Bat. 2. 256.

Nymphæa lutea, var. *Kalmiana*. Michx. Fl. 1. 311. Salisb. in Ann. Bot. 2. 76. Dietr. Syn. 3. 265.

Nymphæa microphylla. Persoon, 2. 63.

Nymphæa Kalmiana. Sims, Bot. Mag. t. **1243**. Poir. Suppl. 4. 81.

Nuphar Kalmiana. Ait. f. Hort. Kew. 3. 295. Pursh, 369. Smith, Rees Cyc. n. 3. Nutt. Genera, 2. 13. DC. Syst. 2. 61; Prodr. 1. 116. James, Long's Exp. 3. 127. Bart. Fl. Phil. 2. 11. Torrey, Fl. U. S. 218. Hook. Fl. Bor.-Am. 1. 32. Don, Mill. 1. 327. Spach, Hist. Veg. 7. 176. Gray, Manual, 2 ed. 23. Wood, Bot. & Fl. 29.

Nuphar lutea, var. *Kalmiana*. Torr. & Gray, Fl. 1. 58. Torrey, Fl. N. Y. 1. 40. Gray, Manual, 1 ed. 24.

Nuphar luteum, var. *pumilum*. Gray, Manual, 57.

N. sagittæfolium. Pursh, 370. Nutt. Genera, 2. 13. DC. Syst. 2. 62; Prodr. 1. 116. Elliott, 2. 8. Don, Mill. 1. 127. Torr. & Gray, Fl. 1. 58. Dietr. Syn. 3. 265. Planch. Fl. des Serres, 8. 120; Ann. Sci. Nat. 3. 19. 62. Chapman, 20. Wood, Cl.-Book, 221; Bot. & Fl. 39. Hook. f. Arct. Pl. 313.

Nymphæa sagittifolia. Walt. Fl. Car. 155. Gmel. Syst. 812. Poir. Dict. 4. 458. Salisb. in Ann. Bot. 2. 71.

Nymphæa longifolia. Michx. Fl. 1. 312. Poir. Suppl. 4. 81.

Nymphæa sagittata. Persoon, 2. 63.

Nuphar longifolia. Smith, Rees Cyc. n. 5.

NYMPHÆA ampla. DC. Syst. 2. 54, in part; Prodr. 1. 115. Hook. Bot. Mag. t. **4469**. Gray, Pl. Wright, 1. 7. Planch. Ann. Sci. Nat. 3. 19. 44, with syn. Lehm. Nymph. 5. Griseb. Fl. Br. W. Ind. 11.

N. elegans. Hook. Bot. Mag. t. **4604**. Gray, Pl. Wright. 1. 129. Planch. Fl. des Serres, 8. 120; Ann. Sci. Nat. 3. 19. 46. Lehm. Nymph. 8. Paxton's Fl. Gard. 2. 118.

N. Mexicana. Gray, Pl. Wright. 1. 7, not Zucc.

N. odorata. Ait. Hort. Kew. 2. 227. Poir. Dict. 4. 457. Willd. Spec. 2. 1153; Hort. Berol. t. **39**. Andr. Bot. Rep. 5, t. **297**. Sims, Bot. Mag. t. **819**. Persoon, 2. 63. Pursh, 368. Bigel, Fl. Bost. 132; Med. Bot. 3. 134, t. **55**. DC. Syst. 2. 57; Prodr. 1. 116. Smith, Rees Cyc. n. 2. Elliott, 2. 7. Bart. Fl. Phil. 2. 11. Raf. Med. Fl. 2. 44, f. **67**. Hook. Fl. Bor.-Am. 1. 32; Jour. Bot. 1. 189. Don, Mill. 1. 126. Nutt. Fl. Ark. 160. Torr. & Gray, Fl. 1. 57. Spach, Hist. Veg. 7. 174. Dietr. Syn. 3. 264. Torrey, Fl. N. Y. 1. 39. Gray, Genera, 1. 102, t. **42, 43**; Struct. Bot. 386, f. **677–680**; Manual, 56. Parry, Pl. Minn. 609. Planch. Fl. des Serres, 8. 120; Ann. Sci. Nat. 3. 19. 52. Lehm. Nymph. 13. Chapman, 19. Caspary, Ann. Mus. Bot. Lugd.-Bat. 2. 250. Traill, Canad. Fl. 67, t. **8**. Hall, Torr. Bull. 4. 39.

Nymphæa alba. Walt. Fl. Car. 155. Michx. Fl. 1. 311.

Castalia pudica. Salisb. in Hook. Parad. Lond. under t. 14 (Ann. Bot. 2. 72).

Var. **reniformis**. Torr. & Gray, Fl. 1. 57. Lehm. Nymph. 13.

Nymphæa reniformis. Walter, 155. Gmel. Syst. 812. Poir. Dict. 4. 458. Salisb. in Ann. Bot. 2. 76.

Nelumbium reniforme. Willd. Spec. 2. 1260. Poir. Suppl. 4. 79. Caspary, l. c. 2. 251.

Cyamus reniformis. Pursh, 398. Elliott, 2. 68.

Var. **minor**. Sims, Bot. Mag. t. **1652**. Torr. & Gray, Fl. 1. 57. Paine, Cat. Pl. Oneida, 183. Gray, Manual, 56. Macoun & Gibson, Trans. Edinb. 12. 310.

Nymphæa odorata, var. *rosea*. Pursh, 369.

N. minor. DC. Syst. 2. 58; Prodr. 1. 116. Hook. Fl. Bor.-Am. 1. 32. Don, Mill. 1. 126.

? *N. rosea.* Raf. Med. Fl. 2. 45.

N. tuberosa. Paine, Cat. Pl. Oneida, 184 (Bull. Soc. Bot. Fr. 14, Rev. Bibl. 55). Gray, Manual, 56. Hall, Torr. Bull. 4. 39. Macoun & Gibson, l. c.

N. alba. Nutt. Genera, 2. 13.

? *N. reniformis.* DC. Syst. 2. 55; Prodr. 1. 115, not Walt? Deless. Icon. Sel. 2. 3. t. 5. Don, Mill. 1. 126.

? *N. maculata & spiralis.* Raf. Med. Fl. 2. 45.

SARRACENIACEÆ.

DARLINGTONIA Californica. Torrey, Smithson. Contrib. 6. 4, **t. 1**; Torr. Bull. 2. 14; Am. Naturalist, 5. 307; Bot. Wilkes, 221. Gray, Am. Jour. Sci. 2. 16. 425 & 2. 35. 136. Walp. Ann. 4. 169. Planch. Fl. des Serres, 14. 125, **t. 1440, 1441.** Maout & Decne. 407, **figs.** Moore, Fl. Mag. 1869, **t. 457.** Morren, Belg. Hortic. 5. 113, **t. 18.** Thurber, Am. Agric., Mar. 1870, **fig.** Hook. Bot. Mag. **t. 5920.** Masters, Gard. Chron. 1871, 835, **f. 171.** André, Ill. Hort. 18. 156, **t. 75.** Baill. Hist. Pl. 3. 92. A. DC. Prodr. 17. 3. A. Braun, Sitz.-Ber. Gesell. Berlin, 1873, 73.

SARRACENIA Drummondii. Croom, Ann. Lyc. N. Y. 4. 100, **t. 6.** Torr. & Gray, Fl. 1. 59. Walp. Rep. 1. 108. Dietr. Syn. 3. 260. Decne. in Fl. des Serres, 7. 268. Chapman, 21. Baill. Hist. Pl. 3. 90, **f. 102.** A. DC. Prodr. 17. 5. Gray, Am. Jour. Sci. 3. 6. 467.

? *S. leucophylla.* Raf. Fl. Lud. 14. Spreng. Syst. 2. 600.

S. Gronovii, var. *Drummondii.* Wood, Cl.-Book, 222; Bot. & Fl. 30.

S. flava. Linn. Spec. 510. Hill, Veg. Syst. 15, **t. 17, f. 2.** Walt. Fl. Car. 153. Ait. Hort. Kew. 2. 225. Willd. Spec. 2. 1150. Michx. Fl. 1. 310. Andr. Bot. Rep. 6, **t. 381.** Sims, Bot. Mag. **t. 780.** Poir. Dict. 6. 545. Persoon, 2. 62. Pursh, 367. Elliott, 2. 10. Spreng. Syst. 2. 600. Audubon, Birds, **t. 300** & **401.** Don, Mill. 1. 128. Lodd. Bot. Cab. **t. 1957.** Paxton's Mag. Bot. 1. 56 & **t.** Hook. Jour. Bot. 1. 190. Croom, Ann. Lyc. N. Y. 4. 103; Am. Jour. Sci. 1. 28. 167. Torr. & Gray, Fl. 1. 59. Dietr. Syn. 3. 260. Spach, Hist. Veg. 13. 331. Decne. in Fl. des Serres, 7. 266. Rev. Hort. 1. 121, **t. 7.** Lemaire, Ill. Hort. 2, **t. 63,** & 14, Misc. 37. Planch. Fl. des Serres, 10. 233, **t. 1068.** Chapman, 21. Regel, Gart. Fl. 16. 259, **t. 554.** Gray, Manual, 58; Am. Jour. Sci. 3. 6. 149 & 467. A. DC. Prodr. 17. 5.

S. Catesbæi. Elliott, 2. 11. Spach, Hist. Veg. 13. 331.

S. Gronovii, a. Wood, Cl.-Book, 222; Bot. & Fl. 30.

S. psittacina. Michx. Fl. 1. 311. Poir. Dict. 6. 546. Persoon, 2. 62. Pursh, 368. Elliott, 2. 10. Hook. Jour. Bot. 1. 190. Croom, Ann. Lyc. N. Y. 4. 101. Torr. & Gray, Fl. 1. 59. Walp. Rep. 1. 108. Dietr. Syn. 3. 260. Spach, Hist. Veg. 13. 330. Decne. in Fl. des Serres, 7. 268. Chapman, 20. Wood, Cl.-Book, 221; Bot. & Fl. 30. Masters, Gard. Chron. 1866, 1218 & **fig.** (Ill. Hort. 14, Misc. 37 & **fig.**). A. DC. Prodr. 17. 4.

S. calceolata. Nutt. in Trans. Am. Phil. Soc. 2. 4. 49, **t. 1.**

S. pulchella. Croom, Am. Jour. Sci. 1. 25. 75, 26. 317 & 28. 167.

S. purpurea. Linn. Spec. 510. Hill, Veg. Syst. 15, **t. 17, f. 1.** Walt. Fl. Car. 152. Ait. Hort. Kew. 2. 226. Willd. Spec. 2. 1150. Michx. Fl. 1. 310. Poir.

Dict. 6. 545; Lam. Ill. 3. 16, t. **452**. Sims, Bot. Mag. t. **849**. Persoon, 2. 62. Barton, Elem. Bot. Appx. 17, t. **1**. Pursh, 367. Nutt. Genera, 2. 11. Lodd. Bot. Cab. t. **308**. Richards. Frankl. Journ. 12. Elliott, 2. 9. Spreng. Syst. 2. 600. De La Pyl. in Ann. Linn. Soc. Par. 6. 388, t. **13**. Hook. Fl. Bor.-Am. 1. 33. Don, Mill. 1. 128. Audubon, Birds, t. **202**. Croom, Ann. Lyc. N. Y. 4. 98. Paxton's Mag. Bot. 3. 221 & t; Fl. Gard. 2. 24, f. **146**. Torr. & Gray, Fl. 1. 59. Dietr. Syn. 3. 260. Torrey, Fl. N. Y. 1. 41. Spach, Hist. Veg. 13. 329. Gray, Genera, 1. 108, t. **45, 46**; Manual, 58. Decne. in Fl. des Serres, 7. 268. Planch. in same, 10. 247, t. **1076**. Schnizl. Icon. t. **185***. Chapman, 20. Hook. f. Arct. Pl. 284. Regel, Gart. Fl. 16. 130, t. **542**. Maout & Decne. 407, **figs**. Traill, Canad. Fl. 73, t. **9**. Baill. Hist. Pl. 3. 91, f. **104–107**. A. DC. Prodr. 17. 4.

Var. **heterophylla**. Torrey, Compend. 217; Fl. N. Y. 1. 41, t. **6**. Gray, Manual, 1 ed. 25. Gillman, Am. Naturalist, 4. 43.

S. heterophylla. Eaton, Manual, 4 ed. 447.

Var. **alata**. Wood, Bot. & Fl. 30.

S. rubra. Walt. Fl. Car. 152. Willd. Spec. 2. 1150. Poir. Dict. 6. 547. Persoon, 2. 62. Ait. f. Hort. Kew. 3. 291. Elliott, 2. 10. Spreng. Syst. 2. 600. Don, Mill. 1. 128. Croom, Ann. Lyc. N. Y. 4. 99. Torr. & Gray, Fl. 1. 59. Dietr. Syn. 3. 260. Spach, Hist. Veg. 13. 330. Decne. in Fl. des Serres, 7. 268. Chapman, 21. A. DC. Prodr. 17. 4.

S. Gronovii, var. *rubra*. Wood, Cl.-Book, 222; Bot. & Fl. 30.

Var. **acuminata**. A. DC. Prodr. 17. 4.

S. rubra. Hook. Exot. Fl. t. **13**; Bot. Mag. t. **3515**. Lodd. Cab. t. **1163**.

S. Sweetii. A. DC. Prodr. 17. 5.

S. minor. Sweet, Brit. Fl. Gard. 2 ser. t. **138**. Paxt. Mag. Bot. 16. 47, & **fig**.

S. rubra. Planch. in Fl. des Serres, 10. 243, t. **1074**.

S. undulata. Decne. in Rev. Hort. 1. 126 (Fl. des Serres, 6. 267). A. DC. Prodr. 17. 5.

S. Drummondii. Paxton's Fl. Gard. 1. 1, t. **1**. Planch. Fl. des Serres, 6. 81, t. **560**, & 10. 239, t. **1071**. Moore, Fl. Mag. t. **208**.

S. variolaris. Michx. Fl. 1. 310. Poir. Dict. 6. 546. Persoon, 2. 62. Pursh, 367. Sims, Bot. Mag. t. **1710**. Elliott, 2. 12. Lodd. Bot. Cab. t. **803**. Spreng. Syst. 2. 600. Don, Mill. 1. 128. Croom, Ann. Lyc. N. Y. 4. 102. Torr. & Gray, Fl. 1. 59. Dietr. Syn. 3. 260. Spach, Hist. Veg. 13. 330. Decne. in Fl. des Serres, 6. 267. Chapman, 21. Wood, Cl.-Book, 221; Bot. & Fl. 30. Baill. Hist. Pl. 3. 90, f. **103**. A. DC. Prodr. 17. 6.

S. minor. Walt. Fl. Car. 153? Willd. Spec. 2. 1150. Persoon, 2. 62. Spach, Hist. Veg. 13. 330.

? *S. lacunosa*. Bartr. Trav. 417.

S. adunca. Smith, Exot. Bot. 1. 103, t. **53**. Ait. f. Hort. Kew. 3. 291. Macbride, Trans. Linn. Soc. 12. 48

PAPAVERACEÆ.

ARCTOMECON Californicum. Torrey, Frem. Rep. 312, t. **2** (Bot. Zeit. 5. 40). Walp. Ann. 1. 22. Duchartre, Revue Bot. 2. 52. Benth. & Hook. Genera, 1. 52.

ARGEMONE fruticosa. Thurb.; Gray, Pl. Thurb. 306. Torrey, Mex. Bound. 31.

A. hispida. Gray, Pl. Fendl. 5. Torrey, Stansb. Rep. 383; Pac. R. Rep. 7. 7. Walp. Ann. 2. 25. Durand, Fl. Utah, 158.

A. munita. Dur. & Hilg. Pl. Heerm. in Jour. Acad. Philad. 2. 3. 37; Pac. R. Rep. 5. 5, t. 1. Walp. Ann, 4. 170 & 7. 85.

A. Mexicana. Engelm. Wisliz. Rep. 3. Torrey, Pac. R. Rep. 5. 359. Anderson, Cat. Fl. Nev. 117. Porter, Hayd. Rep. 1870, 473.

A. Mexicana, var. *hispida.* Torrey, Mex. Bound. 31. Watson, King's Rep. 5. 13. Coulter, Hayd. Rep. 1872, 759.

A. Mexicana. Linn. Spec. 508. See syn. in DC. Syst. 2. 85. — Pursh, 366. Nutt. Genera, 2. 9. James, Catalogue, 183. Elliott, 2. 13. Hook. Jour. Bot. 1. 189. Torr. & Gray, Fl. 1. 61; Pac. R. Rep. 159. Gray, Genera, 1. 112, t. **47**; Pl. Fendl. 5; Manual, 59. Engelm. Wisliz. Rep. 28. Torrey, Emory's Rep. 406; Marcy's Rep. 280; Pac. R. Rep. 4. 64; Mex. Bound. 31. Scheele. Roemer's Texas, 436. Chapman, 21. Porter, Fl. Col. 6.

Var. **albiflora.** DC. Syst. 2. 86; Prodr. 1. 120. Torrey, Ann. Lyc. N. Y. 2. 166; Frem. Rep. 87. Torr. & Gray, Pac. R. Rep. 2. 125. Gray, same, 12. 40.

A. albiflora. Hornem. Hort. Hafn. 489. Bot. Mag. t. **2342.**

A. alba. Raf. Fl. Lud. 83. James, Long's Exp. 2. 149.

A. grandiflora. Sweet, Brit. Fl. Gard. t. **226.** Lindl. Bot. Reg. t. **1264.**

A. Georgiana. Croom, Am. Jour. Sci. 1. 25. 75.

A. vulgaris, var. *albiflora.* Spach, Hist. Veg. 7. 26.

CHELIDONIUM MAJUS, Linn. Pursh, 365. Bigel. Fl. Bost. 210. Torr. & Gray, Fl. 1. 62. Torrey, Fl. N. Y. 1. 44. Gray, Manual, 60.

DENDROMECON rigidum. Benth. Trans. Hort. Soc. 2. 1. 407; Pl. Hartw. 296. Hook. Icon. t. **37**; Bot. Mag. t. **5134.** Torr. & Gray, Fl. 1. 64. Hook. & Arn. Bot. Beechey, 319. Eat. & Wr. 222. Dietr. Syn. 3. 224. Torrey, Pac. R. Rep. 4 64 & 7. 7; Mex. Bound. 32, t. **3**; Bot. Wilkes, 224. Belg. Hort. 10. 97, t. **97**, f. **1–3.** Fl. des Serres, 14. 43, t. **1411.** Boland. in Proc. Calif. Acad. 3. 78; Cat. 4. Brew. & Wats. Bot. Calif. 1. 22.

D. Harfordii. Kellogg, Proc. Calif. Acad. 5. 102.

ESCHSCHOLTZIA Californica. Cham. in Nees, Hor. Phys. Berol. 73, t. **15.** Cham. & Schlecht. in Linn. 1. 554. DC. Prodr. 3. 344. Don, Mill. 1. 137, f. **41.** Maund, Bot. Gard. 7, t. **298.** Hook. & Arn. Bot. Beechey, 134. Walp. Rep. 1. 116. Eat. & Wr. 194. Dietr. Syn. 3. 285. Benth. Pl. Hartw. 296. Gray, Pl. Thurb. 300; Ives' Rep. 5; Proc. Bost. Soc. Nat. Hist. 7. 145. Torr. & Gray, Pac. R. Rep. 2. 119. Torrey, same, 4. 64 & 7. 7; Mex. Bound. 31; Bot. Wilkes, 224. Newberry, Pac. R. Rep. 6. 67. Durand, Pl. Pratten. 80. Wood, Cl.-Book, 224; Bot. & Fl. 32. Maout & Decne, 410, **figs.** Anderson, Cat. Pl. Nev. 117. Boland. Cat. 4. Watson, King's Rep. 5. 13. Brew. & Wats. Bot. Calif. 1. 22.

E. crocea. Benth. Trans. Hort. Soc. 2. 1. 407. Lindl. Bot. Reg. t. **1677.** Don; Sweet, Brit. Fl. Gard. 2 ser. t. **299.** Hook. Bot. Mag. t. **3495.** Paxton, Mag. Bot. 3. 42 & t. Spach, Hist. Veg. 7. 49. Dietr. Syn. 3. 286. Baill. Hist. Pl. 3. 119, f. **138–140.**

Chryseis compacta. Lindl. Bot. Reg. t. **1948.**

Omonoia Californica. Raf. Fl. Tellur. 2. 92.

C. crocea. Torr. & Gray, Fl. 1. 63. Eat. & Wr. 194.

C. Californica. Hook. & Arn. Bot. Beechey, 319. Torr. & Gray, Fl. 1. 664. Eat. & Wr. 194. Cooper, Pac. R. Rep. 12. 56.

Eschscholtzia compacta. Walp. Rep. 1. 116. Dietr. Syn. 3. 286.

Chryseis Californica, var. *albiflora.* Lindl. Journ. Hort. Soc. 7. 279.

Var. **Douglasii.** Gray, Field & Gard. Bot. 49. Brew. & Wats. l. c. 23.

E. Californica. Lindl. Bot. Reg. t. **1168.** Sweet, Brit. Fl. Gard. t. **265.** Hook. Bot. Mag. t. **2887**; Fl. Bor.-Am. 1. 34. Lodd. Bot. Cab. t. **1635.** Spach, Hist. Veg. 7. 48, t. **140.**

Chryseis Californica. Torr. & Gray, Fl. 1. 63.

C. Douglasii. Hook. & Arn. Bot. Beechey, 320. Torr. & Gray, Fl. 1. 664. Cooper, Pac. R. Rep. 12. 56.

E. Douglasii. Benth. Pl. Hartw. 296. Walp. Rep. 1. 116. Torrey, Pac. R. Rep. 4. 64 & 7. 7; Mex. Bound. 31; Bot. Wilkes, 224. Newberry, Pac. R. Rep. 6. 66. Wood, Cl.-Book, 224; Bot. & Fl. 32.

E. Californica, var. *parvula.* Gray, Pl. Wright. 2. 10.

Var. **cæspitosa.** Brewer, Bot. Calif. 1. 23.

E. cæspitosa. Benth. Trans. Hort. Soc. 2. 1. 407. Walp. Rep. 1. 116. Dietr. Syn. 3. 286. Boland. Cat. 4.

E. tenuifolia. Benth. l. c. 408; Pl. Hartw. 296. Walp. Rep. 1. 116. Eat. & Wr. 194. Dietr. Syn. 3. 286. Hook. Bot. Mag. t. **4812.** Gray, Proc. Bost. Soc. 7. 145.

Chryseis cæspitosa & tenuifolia. Torr. & Gray, Fl. 1. 64. Hook. & Arn. l. c.

E. Californica, var. *tenuifolia.* Torr. Pac. Rep. 4. 64. Gray, Ives' Rep. 5, in part.

Var. **hypecoides.** Gray, Ives' Rep. 5. Watson, Proc. Am. Acad. 11. 122. Parry, Am. Naturalist, 9. 268. Brew. & Wats. l. c.

E. hypecoides. Benth. l. c. Walp. Rep. 1. 116. Dietr. Syn. 3. 286.

Chryseis hypecoides. Torr. & Gray, Fl. 1. 64. Hook. & Arn. Bot. Beechey, 320.

E. minutiflora. Watson, Proc. Am. Acad. 11. 122. Brew. & Wats. l. c.

E. Californica, var. *tenuifolia.* Gray, Ives' Rep. 5, in part.

E. Californica, var. *hypecoides.* Watson, King's Rep. 5. 14.

HUNNEMANNIA fumariæfolia. Sweet, Brit. Fl. Gard. t. **276.** Hook. Bot. Mag. t. **3061.** Engelm. Wisliz. Rep. 30. (N. E. Mexico.)

MECONOPSIS heterophylla. Benth. l. c. Torr. & Gray, Fl. 1. 61. Hook. & Arn. l. c. 320. Walp. Rep. 1. 110. Eat. & Wr. 315. Dietr. Syn. 3. 223. Hook. Icon. t. **732.** Torrey, Pac. R. Rep. 4. 64; Mex. Bound. 31. Gray, Proc. Bost. Soc. 7. 145. Boland. Cat. 4. Brew. & Wats. Bot. Calif. 1. 22.

M. crassifolia. Benth. Trans. Hort. Soc. 2. 1. 408. Torr. & Gray, Fl. 1. 61. Hook. & Arn. Bot. Beechey, 320. Walp. Rep. 1. 110. Dietr. 3. 223.

PAPAVER nudicaule. Linn. Spec. 507. See syn. in DC. Syst. 2. 70; Elkan, Papav. 16 (Walp. Rep. 1. 111); Fisch. & Mey. Ind. Sem. Petr. 3. 43 & Ledeb. Fl. Ross. 1. 87, as *P. alpinum*; Hook. f. & Thomp. Fl. Ind. 1. 249; Regel, Fl. Ost-Sib. 1. 127, as *P. alpinum*. — Pursh, 365. R. Br. in Ross' Voy. 142; Parry's 1st Voy. Appx. 265. Greville, Mem. Soc. Wern. 3. 430. Richards. Frankl. Journ. 12. Hook. in Trans. Linn. Soc. 14. 362; Fl. Bor.-Am. 1. 34. Cham. & Schlecht. in Linn. 1. 551. Meyer, Pl. Lab. 83. Torr. & Gray, Fl. 1. 60. Hook. & Arn. Bot. Beechey, 121. Seem. Bot. Herald, 23, 50, 54 & 55. Durand, Pl. Kane, 186. Lange, Pl. Grönl. 129. Hook. f. in Jour. Linn. Soc. 1. 116, 120 & 5. 82. Dickie, same, 3. 110 & 11. 33.

P. alpinum. Linn. Spec. 507. Hook. f. Arct. Pl. 284 & 313. Gray, Am. Jour. Sci. 2. 33. 407; Proc. Acad. Philad. 1863, 57. Rothr. Fl. Alask. 442. Porter, Fl. Col. 6.

Var. **radicatum.** DC. Syst. 2. 70. Oeder, Fl. Dan. t. **41.** Elkan, l. c. 17. Apparently including all North American forms.

P. alpinum, var. *xanthopetalum.* Regel, Fl. Ost-Sib. 1. 128.

Var. **microcarpum.** Elkan, l. c. 17.

P. alpinum, var. *microcarpum*. Fisch. & Mey. l. c. 43. Regel, l. c. 130.

P. SOMNIFERUM, Linn. Torr. & Gray, Fl. 1. 60. Gray, Manual, 59.

PLATYSTEMON Californicus. Benth. Trans. Hort. Soc. 2. 1. 405. Lindl. Bot. Reg. t. **1679** (Litt. Ber. zu Linn. 1835, 54). Don; Sweet, Brit. Fl. Gard. 2 ser. t. **394**. Hook. Bot. Mag. t. **3579**. Maund, Bot. Gard. 13, t. **582**; Botanist, 2, t. 65. Torr. & Gray, Fl. 1. 65. Hook. & Arn. Bot. Beechey, 318. Spach, Hist. Veg. 7. 54. Dietr. Syn. 3. 286. Sweet, Orn. Fl. Gard. 2, t. **115**. Torrey, Pac. R. Rep. 4. 64 & 7. 7; Mex. Bound. 31. Newberry, Pac. R. Rep. 6. 67. Boland. Cat. 4. Baill. Hist. Pl. 3. 105, f. **108–111**.

Var. **leiocarpus.** Torr. & Gray, Fl. 1. 65. Benth. Pl. Hartw. 296. Torrey, ll. cc.

P. leiocarpum. Fisch. & Mey. Ind. Sem. Petr. 2. 47 (Ann. Sci. Nat. 2. 5. 180; Hook. Comp. Bot. Mag. 2. 8; Litt. Ber. zu Linn. 1837, 117). Hook. Bot. Mag. t. 3750. Knowles, Fl. Cab. 2. 129, t. **76**.

PLATYSTIGMA Californicum. Benth. & Hook. Genera, 1. 51. Boland. Cat. 4.

Meconella Californica. Torrey, Frem. Rep. 312 (Bot. Zeit. 5. 40); Pac. R. Rep. 4. 64; Mex. Bound. 31. Walp. Ann. 1. 23.

P. lineare. Benth. Trans. Hort. Soc. 2. 1. 407. Fisch. & Mey. Ind. Sem. Petr. 2. 47 (ll. cc.). Hook. Icon. t. **38**; Bot. Mag. t. **3575**. Lindl. Bot. Reg. t. **1954**. Torr. & Gray, Fl. 1. 65. Hook. & Arn. Bot. Beechey, 319. Spach, Hist. Veg. 7. 51. Dietr. Syn. 3. 286. Torrey, Pac. R. Rep. 4. 64; Mex. Bound. 31. Newberry, Pac. R. Rep. 6. 67. Boland. Cat. 4. Baill. Hist. Pl. 3. 106, f. **112**.

P. Oreganum. Benth. & Hook. Genera, 1. 51.

Meconella Oregana. Nutt.; Torr. & Gray, Fl. 1. 64. Hook. Icon. t. **360**. Dietr. Syn. 3. 286.

ROMNEYA Coulteri. Harvey in Lond. Jour. Bot. 4. 74, t. **3**. Walp. Rep. 5. 21. Torrey, Mex. Bound. 31. Baill. Hist. Pl. 3. 107.

SANGUINARIA Canadensis. Linn. Spec. 505. Hill, Veg. Syst. 16, t. **31**. Ait. Hort. Kew. 2. 223. Sims, Bot. Mag. t. **162**. Lam. Ill. 3. 15, t. **449**. Willd. Spec. 2. 1140. Michx. Fl. 1. 309. Poir. Dict. 6. 499. Persoon, 2. 61. Pursh, 366. Bigel. Med. Bot. 1. 75, t. **7**. Nutt. Genera, 2. 10. DC. Syst. 2. 89; Prodr. 1. 121. Elliott, 2. 13. Spreng. Syst. 2. 604. Torrey, Ann. Lyc. N. Y. 2. 166; Fl. N. Y. 1. 43; Nicol. Rep. 144; Emory's Rep. 406. Raf. Med. Fl. 2. 78, f. **83**. Maund, Bot. Gard. 6, t. **242**. Hook. Fl. Bor.-Am. 1. 35. Don, Mill. 1. 136. Lodd. Bot. Cab. t. **1840**. Lindl. Fl. Med. 16. Torr. & Gray, Fl. 1. 62. Spach, Hist. Veg. 7. 39. Dietr. Syn. 3. 261. Leavenworth, Am. Jour. Sci. 1. 49. 130. Nees, Pl. Wied, 4. Gray, Genera, 1. 116, t. **49**; Struct. Bot. 388, f. **688–693**; Manual, 60. Parry, Pl. Minn. 609. Chapman, 22. Lesqx. Fl. Ark. 348. Pl. Bourgeau, 254. Gibb in Canad. Nat. 10. 432. Baill. Hist. Pl. 3. 114, f. **128, 129**.

S. acaulis. Moench, Meth. 227.

S. vernalis. Salisb. Prodr. 377.

S. grandiflora. "Rosc. Fl. Ill. t. **8**." Sweet, Brit. Fl. Gard. 2 ser. t. **147**.

STYLOPHORUM diphyllum. Nutt. Genera, 2. 7. Spreng. Syst. 2. 570. Don, Mill. 1. 135. Dietr. Syn. 3. 223. Gray, Genera, 1. 114, t. **48**; Manual, 59. Hook. Bot. Mag. t. **4867**. Lesqx. Fl. Ark. 348.

Chelidonium diphyllum. Michx. Fl. 1. 309. Persoon, 2. 61. Poir. Suppl. 2. 209. Pursh, 365.

Stylophorum petiolatum. Nutt. Genera, 2. 8. Don, Mill. 1. 135. Dietr. Syn. 3. 223.

Meconopsis diphylla. DC. Syst. 2. 88; Prodr. 1. 121. Torr. & Gray, Fl. 1. 61. Walp. Rep. 1. 110. Wood, Cl.-Book, 224; Bot. & Fl. 82.

Meconopsis petiolata. DC. Syst. 2. 87; Prodr. 1. 21. Torrey, Ann. Lyc. N. Y. 2. 165.

Stylophorum Ohioense. Spreng. Syst. 2. 570.

FUMARIACEÆ.

ADLUMIA cirrhosa. Raf. in N. Y. Med. Rep. 5. 358, & Desv. Jour. Bot. 2. 169. DC. Syst. 2. 111; Prodr. 1. 126. Beck, Bot. 24. Darling. Fl. Cestr. 399. Sweet, Brit. Fl. Gard. t. **189.** Hook. Fl. Bor.-Am. 1. 36. Don, Mill. 1. 141. Torr. & Gray, Fl. 1. 68. Spach, Hist. Veg. 7. 71. Torrey, Fl. N. Y. 1. 47. Dietr. Syn. 4. 487. Gray, Genera, 1. 122, t. **51**; Manual, 60. Chapman, 22. Baill. Hist. Pl. 3. 125.

Fumaria fungosa. Ait. Hort. Kew. 3. 1. Gmel. Syst. 2. 1079. Willd. Spec. 3. 857. Poir. Suppl. 2. 683. Spreng. Syst. 3. 162.

Bicuculla fumarioides. Borckh. in Roem. Arch. 1. 2. 46 (Bot. Zeit. 15. 645). Pfeiff. in Bot. Zeit. 15. 649.

Capnoides scandens. Moench, Suppl. 215.

Fumaria recta. Michx. Fl. 2. 51.

Corydalis fungosa. Vent. Choix Pl. Cels, t. **19.** Persoon, 2. 269. Willd. Enum. 739. Pursh, 463. Bigel. Fl. Bost. 2 ed. 263.

CORYDALIS aurea. Willd. Enum. 740. Pursh, 463. DC. Syst. 2. 125, in part; Prodr. 1. 128. Richards. Frankl. Journ. 16. Elliott, 2. 178. Spreng. Syst. 3. 161. Hook. Fl. Bor.-Am. 1. 37; Jour. Bot. 1. 190. Don, Mill. 1. 143. Bernh. in Linn. 8. 470. Torr. & Gray, Fl. 1. 68; Pac. R. Rep. 2. 159. Torrey, Fl. N. Y. 1. 48; Nicol. Rep. 144; Stansb. Rep. 383. Nees, Pl. Wied, 4. Dietr. Syn. 4. 890. Gray, Genera, 1. 124, t. **52**; Pl. Thurb. 299; Pac. R. Rep. 12. 40; Ives's Rep. 5; Manual, 62. Scheele, Roemer's Texas, 436. Parry, Pl. Minn. 609. Seem. Bot. Herald, 51. Durand, Pl. Utah, 158. Chapman, 23. Regel, Fl. Ost-Sib. 1. 145; Gart. Fl. 10, t. **343**; Fl. Ussur. 19. Miquel, Ann. Mus. Lugd.-Bat. 3. 13. Porter, Hayd. Rep. 1870, 473.

Fumaria aurea. Muhl.; Willd. l. c. Poir. Suppl. 2. 683. Ker, Bot. Reg. t. **66.**

Neckeria aurea. Pfeiff. in Bot. Zeit. 15. 649.

C. speciosa. Maxim. Prim. Fl. Amur. 39.

Var. **occidentalis.** Gray, Pl. Fendl. 6; Manual, 62; Hall's Pl. Tex. 3. Porter, Hayd. Rep. 1871, 478. Watson, King's Rep. 5. 14.

C. montana. Engelm.; Wood, Bot. & Fl. 34.

C. aurea. Torrey, Bot. Wilkes, 225.

Var. **micrantha.** Engelm.; Gray, Manual, 62. Watson, King's Rep. 5. 14.

Var. **macrantha.** Wood, Bot. & Fl. 34.

C. Caseana. Gray, Proc. Am. Acad. 10. 69.

C. crystallina. Engelm.; Gray, Manual, 62.

C. aurea, var. *crystallina.* Torr. & Gray, Fl. 1. 665.

C. curvisiliqua. Engelm.; Gray, Manual, 62.

C. aurea, var. *curvisiliqua.* Gray, Proc. Acad. Philad. 1863, 57; Pl. Wright. 2. 10. Torrey, Mex. Bound. 32. Porter, Fl. Col. 6.

C. flavula. DC. Prodr. 1. 129. Don, Mill. 1. 144. Nees, Pl. Wied, 4. Gray, Manual, 61.

Fumaria flavula. Raf. in Desv. Jour. Bot. 1. 224. Poir. Suppl. 5. 684.
Neckeria flavula. Pfeiff. in Bot. Zeit. 15. 649.
C. aurea, var. *flavula.* Wood, Bot. & Fl. 34.

C. glauca. Pursh, 463. DC. Syst. 2. 123; Prodr. 1. 128. Bigel. Fl. Bost. 2 ed. 262. Spreng. Syst. 3. 161. Hook. Fl. Bor.-Am. 1. 37. Don, Mill. 1. 143. Torr. & Gray, Fl. 1. 69. Torrey, Fl. N. Y. 1. 48. Dietr. 4. 890. Seem. Bot. Herald, 50. Chapman, 23. Hook. f. Arct. Pl. 284. Rothr. Alask. 442. Gray, Manual, 61.
Fumaria sempervirens. Linn. Spec. 700. Lam. Dict. 2. 569. Ait. Hort. Kew. 3. 2. Willd. Spec. 3. 863. Michx. Fl. 2. 51.
Neckeria sempervirens. Scop. Introd. Hist. Nat. 313. Pfeiff. in Bot. Zeit. 15. 649.
Fumaria glauca. Curtis, Bot. Mag. t. **179.**
Capnoides glauca. Moench, Meth. 52.
Capnoides sempervirens. Borckh. in Roem. Arch. 1². 44. Persoon, 2. 269. Willd. Enum. 740.
Corydalis sempervirens. Persoon, 2. 269. Richards. Frankl. Journ. 16. Bernh. in Linn. 8. 470. Regel, Fl. Ost-Sib. 1. 147.

C. pæoniæfolia. Persoon, 2. 269. DC. Syst. 2. 122; Prodr. 1. 128. Cham. & Schlecht. in Linn. 1. 562. Turcz. Fl. Baic. 1. 104. Ledeb. Fl. Ross. 1. 102 & 746. Torr. & Gray, Fl. 1. 69 & 665, under *C. Scouleri.*
Fumaria pæoniæfolia. Steph.; Willd. Spec. 3. 859. Poir. Suppl. 2. 683.

C. pauciflora. Persoon, 2. 269. DC. Syst. 2. 115; Prodr. 1. 127. Deless. Icon. Sel. 2, t. 9, f. A. Cham. & Schlecht. in Linn. 1. 560. Hook. Fl. Bor.-Am. 1. 37. Torr. & Gray, Fl. 1. 70. Hook. & Arn. Bot. Beechey, 121. Ledeb. Fl. Alt. 3. 240; Icon. t. **450**; Fl. Ross. 1. 97. Turcz. Fl. Baic. 1. 102. Seem. Bot. Herald, 23. Hook. f. Arct. Pl. 284. Rothr. Alask. 442.
Fumaria pauciflora. Steph.; Willd. Spec. 3. 861. Poir. Suppl. 2. 684.
F. Altaica. Ledeb. Mem. Acad. Petr. 5. 551.
Bulbocapnos pauciflora. Bernh. in Linn. 8. 469.

C. Scouleri. Hook. Fl. Bor.-Am. 1. 36, t. **13.** Don, Mill. 1. 143. Torr. & Gray, Fl. 1. 69 & 665. Walp. Rep. 1. 121. Dietr. 4. 889. Cooper, Pac. R. Rep. 12. 56.
C. macrophylla. Nutt.; Torr. & Gray, Fl. 1. 69. Walp. Rep. 1. 121.

DICENTRA Canadensis. (On the nomenclature of the genus, variously known as *Diclytra*, *Dielytra* and *Dicentra*, and of the order, see Pfeiffer in Bot. Zeit. 15. 641–650.) DC. Prodr. 1. 126. Hook. Bot. Mag. t. **3031.** Don, Mill. 1. 140. Torr. & Gray, Fl. 1. 67. Torrey, Fl. N. Y. 1. 46. Dietr. 4. 887. Gray, Genera, 1. 120, t. **50**, f. **1–5**; Manual, 61. Schnizl. Icon. t. **180²**, f. **1.** Traill, Canad. Fl. 37, t. **4.**
Corydalis formosa. Pursh, 462, in part.
Corydalis Canadensis. Goldie, Edinb. Phil. Jour. 6. 330. Thomas, Am. Jour. Sci. 1. 25. 114, with t.
D. eximia, var. *β.* Hook. Fl. Bor.-Am. 1. 35.
D. eximia. Beck, Bot. 23; not DC. Darling. Fl. Cestr. 390.

D. chrysantha. Hook. & Arn. Bot. Beechey, 320, t. **73.** Torr. & Gray, Fl. 1. 665. Walp. Rep. 1. 118. Dietr. Syn. 4. 887. Gray, Genera, 1. 120; Proc. Bost. Soc. Nat. Hist. 17. 145. Paxton, Fl. Gard. 3. 151, t. **103.** Torrey, Mex. Bound. 32. Boland. Cat. 4. Brew. & Wats. Bot. Calif. 1. 24.
Capnorchis chrysantha. Planch. Fl. Serr. 8. 193, t. **820** (Walp. Ann. 4. 176).

D. Cucullaria. DC. Syst. 1. 108; Prodr. 1. 125. Hook. Fl. Bor.-Am. 1. 35. Don, Mill. 1. 140. Beck, Bot. 23. Torr. & Gray, Fl. 1. 66. Eat. & Wr. 224. Torrey, Fl. N. Y. 1. 45; Nicol. Rep. 144; Bot. Wilkes, 225. Nees, Pl. Neuwied, 4. Dietr.

4. 487. Parry, Pl. Minn. 609. Planch. Fl. Serr. 8, t. **920**. Pfeiff. in Bot. Zeit. 15. 649. Lemaire, Ill. Hort. 6, t. **215**. Chapman, 23. Gray, Manual, 61. Brew. & Wats. l. c.

Fumaria Cucullaria. Linn. Spec. 699; Mant. 437. Lam. Dict. 2. 571. Ait. Hort. Kew. 3. 1. Willd. Spec. 3. 857. Michx. Fl. 2. 51. Sims, Bot. Mag. t. **1127**.

D. Canadensis. Borckh. in Roem. Arch. 1². 46 (Bot. Zeit. 15. 645).

Fumaria pallida. Salisb. Prodr. 377.

Corydalis Cucullaria. Persoon, 2. 269. Hornem. Hort. Hafn. 2. 668. Willd. Enum. 739. Pursh, 462. Nutt. Genera, 2. 86. Bigel. Fl. Bost. 2 ed. 263. Spreng. Syst. 3. 162. Torrey, Compend. 259.

Cucullaria bulbosa. Raf. Med. Rep. 5. 353; Desf. in Journ. Bot. 2. 169.

Capnorchis Cucullaria. Planch. Fl. Serr. 8. 193 (Walp. Ann. 4. 176).

D. eximia. DC. Syst. 1. 109; Prodr. 1. 126. Don, Mill. 1. 140. Maund, Bot. Gard. 8, t. **340**. Torr. & Gray, Fl. 1. 665. Torrey, Fl. N. Y. 1. 46. Gray, Genera, 1. 120, t. **50, f. 6–10**; Manual, 61. Chapman, 23.

Corydalis formosa. Pursh, 462, in part. Thomas, Am. Jour. Sci. 26. 114, & t.

Fumaria eximia. Ker, Bot. Reg. t. **50** (Spreng. Neue Entdeck. 1. 830). Burnett, Encyc. 2 ed. t. **227**.

Fumaria formosa. Poir. Suppl. 6. 684.

D. formosa. Elliott, 2. 177. Don, Mill. 1. 140, in part. Torr. & Gray, Fl. 1. 67, excl. syn.

Corydalis eximia. Spreng. Syst. 3. 162.

Eucapnos eximia. Borckh. in Linn. 8. 468.

Capnorchis eximia. Planch. Fl. Serr. 8. 193 (Walp. Ann. 4. 177).

D. formosa. DC. Syst. 2. 109, & Prodr. 1. 125, in part. Hook. Fl. 1. 35, & Don, Mill. 1. 140, in part. Torr. & Gray, Fl. 1. 665. Benth. Pl. Hartw. 296. Dietr. Syn. 4. 887. Newberry, Pac. R. Rep. 6. 66. Cooper, same, 12. 56. Durand, Pl. Pratten. 80. Wood, Cl.-Book, 225. Boland. Cat. 4. Torrey, Bot. Wilkes, 225.

Fumaria formosa. Andr. Bot. Rep. 6, t. **393**. Sims, Bot. Mag. t. **1335**. Dryander in Ait. f. Hort. Kew. 4. 239.

Corydalis formosa. Spreng. Syst. 3. 162.

D. eximia. Hook. Fl. Bor.-Am. 1. 35, excl. var. Don, Mill. 1. 140.

Eucapnos formosa. Bernh. in Linn. 8. 468. Spach, Hist. Veg. 7. 68.

D. saccata. Nutt.; Torr. & Gray, Fl. 1. 67. Walp. Rep. 1. 118. Dietr. 4. 887.

Capnorchis formosa. Planch. Fl. Serr. 8. 193 (Walp. Ann. 4. 177).

D. lachenaliæflora. DC. Syst. 2. 111; Prodr. 1. 126. Cham. & Schlecht. in Linn. 1. 556. Hook. Fl. Bor.-Am. 1. 36. Don, Mill. 1. 140. Torr. & Gray, Fl. 1. 68 & 665. Ledeb. Fl. Ross. 1. 97. Dietr. Syn. 4. 887.

Fumaria peregrina. Rudolphi, Mem. Acad. Petr. 1. 379, t. **19**.

Corydalis tenuifolia. Pursh, 462.

Fumaria tenuifolia. Ledeb. Mem. Acad. Petr. 5. 550. Poir. Suppl. 5. 684.

D. tenuifolia. DC. Syst. 2. 110; Prodr. 1. 126. Deless. Icon. Sel. 2. 4, t. **9, f. B**. Hook. Fl. Bor.-Am. 1. 35. Ledeb. Fl. Ross. 1. 97. Regel & Til. Fl. Ajan. 48.

Corydalis lachenaliflora & tenuifolia. Spreng. Syst. 3. 162.

D. uniflora. Kellogg, Proc. Calif. Acad. 4. 141, **fig.** Porter, Hayd. Rep. 1872, 760. Brew. & Wats. Bot. Calif. 1. 24.

FUMARIA OFFICINALIS, Linn. Pursh, 463. Elliott, 2. 179. Bigel. Fl. Bost. 2 ed. 262. Torrey, Compend. 391. Arnott; Hook. Fl. Bor.-Am. 1. 37. Beck, Bot. 23. Torr. & Gray, Fl. 1. 70. Eat. & Wr. 248. Torrey, Fl. N. Y. 1. 49. Gray, Manual, 62.

CRUCIFERÆ.

ALYSSUM CALYCINUM, Linn. Gray, Manual, 72. Wood, Bot. & Fl. 40.

A. Lescurii. Gray, Manual, 72.

Vesicaria (?) *Lescurii.* Gray, Manual, 2 ed. 38. Chapman, 29.

ARABIS alpina. Linn. Spec. 664. See syn. in DC. Syst. 2. 217; Ledeb. Fl. Ross. 1. 117. — Pursh, 436. Greville, Mem. Soc. Wern. 3. 431. Hook. Fl. Bor.-Am. 1. 41. Meyer, Fl. Lab. 85. Don, Mill. 1. 161. Schlecht. Fl. Lab. in Linn. 10. 102. Torr. & Gray, Fl. 1. 80. Durand, Pl. Kane, 186. Lange, Pl. Grönl. 131. Hook. f. in Jour. Linn. Soc. 5. 82; Arct. Pl. 284.

A. arcuata. Gray, Proc. Am. Acad. 6. 187. Boland. Cat. 5. Watson, King's Rep. 18.

Streptanthus arcuatus. Nutt.; Torr. & Gray, Fl. 1. 77. Walp. Rep. 1. 128. Dietr. Syn. 3. 730. Torrey, Mex. Bound. 33.

A. blepharophylla. Hook. & Arn. Bot. Beechey, 321. Torr. & Gray, Fl. 1. 667. Walp. Rep. 1. 132. Dietr. Syn. 3. 693. Kellogg, Proc. Calif. Acad. 1. 33. Gray, Proc. Am. Acad. 6. 167. Boland. Cat. 5. Hook. f. Bot. Mag. t. **6087.**

A. Canadensis. Linn. Spec. 655. Hill, Veg. Syst. 12, t. **9**, f. **4.** Lam. Dict. 1. 221. Willd. Spec. 3. 540. R. Br. in Ait. f. Hort. Kew. 4. 108. Persoon, 2. 205. DC. Syst. 2. 238; Prodr. 1. 147. Deless. Icon. Sel. 2. 9, t. **28.** Elliott, 2. 148. Hook. Fl. Bor.-Am. 1. 43. Beck, Bot. 30. Darling. Fl. Cestr. 383. Torr. & Gray, Fl. 1. 82. Torrey, Nicol. Rep. 145; Fl. N. Y. 1. 55. Dietr. Syn. 3. 694. Gray, Genera, 1. 142, t. **58**, f. **8** (seed); Struct. Bot. 390, f. **698–700**; Manual, 68. Parry, Pl. Minn. 609. Chapman, 28.

A. falcata. Michx. Fl. 1. 31. Poir. Suppl. 1. 414. Pursh, 437. Bigel. Fl. Bost. 251.

A. mollis & Turritis lyrata. Raf. in Am. Month. Mag. 2. 43.

A. lyræfolia. DC. Syst. 2. 244; Prodr. 1. 148. Don, Mill. 1. 166.

A. canescens. Nutt.; Torr. & Gray, Fl. 1. 83. Walp. Rep. 1. 133. Dietr. Syn. 3. 694. Watson, King's Rep. 5. 16 (& var. **latifolia**). Torrey, Bot. Wilkes, 228.

A. puberula. Nutt.; Torr. & Gray, Fl. 1. 82. Hook. Icon. t. **359.** Walp. Rep. 1. 133. Dietr. Syn. 3. 693.

A. dentata. Torr. & Gray, Fl. 1. 80. Walp. Rep. 1. 133. Dietr. Syn. 3. 690. Torrey, Nicol. Rep. 145; Fl. N. Y. 1. 54, t. **7.** Parry, Pl. Minn. 609. Chapman, 27. Gray, Manual, 67.

Sisymbrium dentatum. Torrey; Short's Pl. Kentucky, 3d Suppl. 338.

Shortia dentata. Raf. Autikon Bot. 17.

A. Drummondii. Gray, Proc. Am. Acad. 6. 187; Manual, 69. Porter, Fl. Col. 6.

Turritis stricta. Graham in Edinb. Phil. Jour. 1829, 350 (Litt. Ber. zu Linn. 1830, 158). Hook. Fl. Bor.-Am. 1. 40. Don, Mill. 1. 161. Torr. & Gray, Fl. 1. 79. Walp. Rep. 1. 129. Dietr. Syn. 3. 688. Torrey, Fl. N. Y. 1. 53. Gray, Genera, 1. 144, t. **59**; Manual, 1. ed. 36. Seem. Bot. Herald, 51. Wood, Bot. & Fl. 36. Porter, Hayd. Rep. 1871, 478. Coulter, same, 1872, 760.

? *A. lævigata.* Hook. Fl. Bor.-Am. 1. 43, not DC.

? *A. lilacina.* Schrad. Ind. Sem. Gött. 1832 (Litt. Ber. zu Linn. 1833, 25).

T. glabra, var. *β.* Torr. & Gray, Fl. 1. 78.

? *Turritis spathulata.* Nutt.; Torr. & Gray, Fl. 1. 78. Walp. Rep. 1. 129. Dietr. Syn. 3. 689.

Streptanthus angustifolius. Gray, Proc. Acad. Philad. 1863, 57, not Nutt.

Var. **brachycarpa.** Gray, Manual, 69.

Turritis brachycarpa. Torr. & Gray, Fl. 1. 79. Walp. Rep. 1. 130. Dietr. Syn. 3. 689. Gray, Manual, 1 ed. 37.

Var. **alpina.** Watson, King's Rep. 5. 18. Porter, Hayd. Rep. 1871, 478; Fl. Col. 6. Coulter, Hayd. Rep. 760.

? *A. microphylla.* Nutt.; Torr. & Gray, Fl. 1. 82. Walp. Rep. 1. 133. Dietr. Syn. 3. 693.

A. hirsuta, Scop. See syn. in DC. Syst. 2. 223; Ledeb. Fl. Ross. 1. 118; Regel, Fl. Ost-Sib. 1. 160. — Cham. & Schlecht. in Linn. 1. 15. Hook. Fl. Bor.-Am. 1. 42; Lond. Jour. Bot. 6. 69. Don, Mill. 1. 162. Bongard, Sitch. 125. Darling. Fl. Cestr. 2 ed. 382. Torr. & Gray, Fl. 1. 80. Torrey, Fl. N. Y. 1. 53; Bot. Wilkes, 228. Gray, Pl. Fendl. 7; Pac. R. Rep. 12. 41; Am. Jour. Sci. 2. 33. 243; Manual, 68. Seem. Bot. Herald, 51. Cooper, Pac. R. Rep. 12. 56. Chapman, 27. Lesqx. Fl. Ark. 349. Pl. Bourgeau, 254. Hook. f. Arct. Pl. 284. Rothr. Alask. 442. Porter, Hayd. Rep. 1870, 473, & 1871, 478; Fl. Col. 6. Watson, King's Rep. 5. 16, in part (n. 68).

Turritis ovata. Pursh, 438. Smith, Rees Cyc. n. 8.

Arabis ovata. Poir. Suppl. 5. 557.

Turritis hirsuta. Muhl. Cat. 61.

Turritis oblongata. Raf. Am. Monthly Mag. 2. 44.

A. sagittata. DC. Syst. 2. 222, with syn.; Prodr. 1. 143. Richards. Frankl. Journ. 15. Don, Mill. 1. 163.

A. rupestris. Nutt.; Torr. & Gray, Fl. 1. 81. Walp. Rep. 1. 133. Dietr. Syn. 3. 692. Torrey, Bot. Wilkes, 228.

A. Gerardi, Bess., & var. *borealis.* Regel, Fl. Ost-Sib. 1. 161, with syn., keeping it distinct from *A. hirsuta,* and including under it *A. sagittata, borealis,* etc.

Turritis patula. Pl. Bourgeau, 263, in part.

Var. **glabrata.** Torr & Gray, Fl. 1. 80. Torrey, Pac. R. Rep. 4. 65.

A. Holboellii. Hornem. Fl. Dan. 11, t. **1879.** Walp. Rep. 1. 132. Dietr. Syn. 3. 693. Lange, Pl. Grönl. 131. Gray, Proc. Am. Acad. 6. 187.

A. retrofracta. Graham, Edinb. Phil. Jour. 1829, 344 (Litt. Ber. zu Linn. 1830, 157). C. A. Meyer, Ind. Sem. Petr. 11. 51. Gray, l. c. Watson, King's Rep. 5. 18. Porter, Hayd. Rep. 1871, 478; Fl. Col. 6. Coulter, Hayd. Rep. 1872, 760.

Turritis patula. Graham, ll. cc., not Ehrh. Hook. Fl. Bor.-Am. 1. 40; Lond. Jour. Bot. 6. 69. Don, Mill. 1. 161. Treviranus, Flora, 16[1]. 124. Nutt. Jour. Acad. Philad. 7. 13. Torr. & Gray, Fl. 1. 79. Gray, Pl. Fendl. 7; Pl. Wright, 2. 10; Ives's Rep. 6; Am. Jour. Sci. 2. 33. 242; Jour. Acad. Philad. 1863, 57. Torrey, Sitgr. Rep. 155; Pac. R. Rep. 4. 65; Bot. Wilkes, 227. Aschers. in Flora, 43. 369. Pl. Bourgeau, 263, in part.

Turritis retrofracta. Hook. Fl. Bor.-Am. 1. 41; Lond. Jour. Bot. 6. 69. Don, Mill. 1. 161. Torr. & Gray, Fl. 1. 79; Pac. R. Rep. 2. 119; Walp. Rep. 1. 130. Dietr. Syn. 3. 688. Gray, Pl. Fendl. 7. Pl. Bourgeau, 254. Anderson, Cat. 117. Torrey, Bot. Wilkes, 228.

? *Turritis mollis.* Hook. Fl. Bor.-Am. 1. 40. Don, Mill. 1. 161. Torr. & Gray, Fl. 1. 78. Hornem. Fl. Dan. 13, t. **2296.** Walp. Rep. 1. 129. Dietr. Syn. 3. 688. Lange, Pl. Grönl. 131, keeping it distinct. Hook. f. Arct. Pl. 284 & 314, identifying it with *A. retrofracta.* Possibly a form of *A. Drummondii.*

A. heteromalla & declinata. Schrad. Ind. Sem. Gött. 1831 (Litt. Ber. zu Linn. 1833, 22).

Streptanthus angustifolius & virgatus. Nutt.; Torr. & Gray, Fl. 1. 76. Walp. Rep. 1. 128. Dietr. Syn. 3. 729.

? *Arabis sparsiflora.* Nutt.; Torr. & Gray, Fl. 1. 81. Walp. Rep. 1. 133. Dietr. Syn. 3. 692.

Turritis Grahami. Lehm. Ind. Sem. Hamb. 1831 (Litt. Ber. zu Linn. 1831, 74). Walp. Rep. 1. 129. Dietr. Syn. 3. 688.

A. patula. Torrey, Mex. Bound. 32. Gray, Proc. Am. Acad. 6. 187.

Sisymbrium reflexum. Kellogg, Proc. Calif. Acad. 2. 101, **f. 29.**

A. lævigata. Poir. Suppl. 1. 411. DC. Syst. 2. 237; Prodr. 1. 147. Spreng. Syst. 2. 892. Darling. Fl. Cestr. 2 ed. 382. Torr. & Gray, Fl. 1. 82. Dietr. Syn. 3. 694. Torrey, Fl. N. Y. 1. 55; Nicol. Rep. 145; Bot. Wilkes, 228. Gray, Genera, 1. 142; Manual, 69. Parry, Pl. Minn. 609. Chapman, 28.

Turritis lævigata. Muhl.; Willd. Spec. 3. 543. Persoon, 2. 205. Smith, Rees Cyc. n. 2. Pursh, 438. Nutt. Genera, 2. 71.

A. pendula ? Nutt. Genera, 2. 70. DC. Syst. 2. 236, & Prodr. 1. 147, in part.

A. heterophylla. Nutt.; Torr. & Gray, Fl. 1. 81. Walp. Rep. 1. 133. Dietr. Syn. 3. 693. Gray, Manual, 1 ed. 36.

A. longirostris. Watson, King's Rep. 5. 17, **t. 2.**

A. Ludoviciana. C. A. Meyer, Ind. Sem. Petr. 9. 60; Linn. 18. 170. Walp. Rep. 5. 34. Gray, Manual, 67; Hall's Pl. Tex. 3.

Cardamine Virginica. Linn. Spec. 656, as to syn. Gronov. & Pluk. Hill, Veg. Syst. 12, **t. 19, f. 4.** Willd. Spec. 3. 488. Persoon, 2. 196. Muhl. Cat. 63.

Cardamine Ludoviciana. Hook. Jour. Bot. 1. 191. Torr. & Gray, Fl. 1. 85. Walp. Rep. 1. 136. Dietr. 3. 698. Turcz. Bull. Soc. Mosc. 27². 294. Chapman, 26.

Cardamine Engelmanniana. Ind. Sem. Berol. 1840.

A. lyrata. Linn. Spec. 665. Hill, Veg. Syst. 12, **t. 9, f. 4.** Willd. Spec. 3. 538. Persoon, 2. 204. Pursh, 437. Nutt. Genera, 2. 70. DC. Syst. 2. 231; Prodr. 1. 146. Richards. Frankl. Journ. 15. Don, Mill. 1. 164. Torr. & Gray, Fl. 1. 81. Torrey, Fl. N. Y. 1. 54. Chapman, 27. Gray, Manual, 67. Porter, Hayd. Rep. 1870, 473.

Sisymbrium arabidoides. Hook. Fl. Bor.-Am. 1. 63, **t. 21.** Darling. Fl. Cestr. 2 ed. 387.

Sisymbrium humifusum. J. Vahl; Fl. Dan. 13, **t. 2297.** Lange, Pl. Grönl. 129. Fournier, Mon. Sisymb. 133.

? *A. petræa,* Lam. q. v. Hook. f. unites the two species.

A. patens. Sulliv. Am. Jour. Sci. 1. 42. 49. Gray, Genera, 1. 142, **t. 58**; Manual, 69. Chapman, 27.

A. perfoliata. Lam. Dict. 1. 219. See syn. in DC. Syst. 2. 211, under *Turritis glabra*; Ledeb. Fl. Ross. 1. 116; Regel, Fl. Ost-Sib. 1. 160. — Gray, Manual, 69. Watson, King's Rep. 5. 17. Porter, Hayd. Rep. 1871, 478.

Turritis glabra. Linn. Spec. 666. Richards. Frankl. Journ. 15. Hook. Fl. Bor.-Am. 1. 40; Lond. Jour. Bot. 6. 69. Torr. & Gray, Fl. 1. 78. Walp. Rep. 1. 129. Gray, Pl. Fendl. 7; Manual, 1 ed. 36. Torrey, Pac. R. Rep. 4. 65. Hook. f. Arct. Pl. 284. Pl. Bourgeau, 254. Wood, Bot. & Fl. 36.

Turritis macrocarpa. Nutt.; Torr. & Gray, Fl. 1. 78. Walp. Rep. 1. 129. Dietr. Syn. 3. 689. Torrey, Bot. Wilkes, 227.

Arabis macrocarpa. Torrey, Mex. Bound. 32.

Turritis perfoliata, Neck. Boland. Cat. 5.

A. petiolaris. Gray, Proc. Am. Acad. 6. 187; Hall's Pl. Tex. 3.

Streptanthus petiolaris. Gray, Pl. Lindh. 143; Pl. Fendl. 7; Pl. Wright. 1. 7. Walp. Ann. 2. 33. Torr. & Gray, Pac. R. Rep. 2. 159. Torrey, Mex. Bound. 32.

Streptanthus Brazoensis. Buckley, Proc. Acad. Philad. 1861, 448, ex Gray, same, 1862, 161.

A. petræa. Lam. Dict. 1. 221. See syn. in DC. Syst. 2. 229; Ledeb. Fl. Ross. 1. 120; Regel, Fl. Ost-Sib. 1. 163. — Cham. & Schlecht. in Linn. 1. 15. Hook. Fl. Bor.-Am. 1. 42, excl. syn. Torr. & Gray, Fl. 1. 80. Regel, l. c., **t. 5, f. 5–10.** Hook. f. Arct. Pl. 284 & 314, including *A. lyrata.* Gray, Manual, 67.

Var. **ambigua.** Regel, l. c.

A. ambigua. DC. Syst. 2. 231; Prodr. 1. 145. Cham. & Schlecht. in Linn. 1. 16. Hook. Fl. Bor.-Am. 1. 42. Bong. Sitch. 125. Torr. & Gray, Fl. 1. 81. Ledeb. Fl. Ross. 1. 120.

A. platysperma. Gray, Proc. Am. Acad. 6. 519. Watson, King's Rep. 5. 16.

A. spathulata. Nutt.; Torr. & Gray, Fl. 1. 81, not DC. Walp. Rep. 1. 138. Dietr. Syn. 3. 692.

A. hirsuta. Watson, King's Rep. 5. 16, in part (n. 67).

A. stricta, Huds. See syn. in DC. Syst. 2. 224. — Pursh, 437. Hook. Fl. Bor.-Am. 1. 42. Torr. & Gray, Fl. 1. 80. C. A. Meyer, Fl. Lab. 85.

A. ambigua; petræa.
bulbosa; Cardamine rhomboidea.
declinata; Holbœllii.
Douglassii; Cardamine rotundifolia.
falcata; Canadensis.
Gerardi; hirsuta.
hesperidoides; Thelypodium pinnatifidum.
heteromalla; Holbœllii.
heterophylla; lævigata.
hirsuta; spathulata.
lævigata & lilacina; Drummondii.
lyræfolia; Canadensis.
macrocarpa; perfoliata.
microphylla; Drummondii.
mollis; Canadensis.
A. nudicaulis; Parrya nudicaulis.
ovata; hirsuta.
parviflora; Sisymbrium Thaliana.
patula; Holbœllii.
pendula; lævigata.
puberula; canescens.
reptans; Draba Caroliniana.
retrofracta; Holbœllii.
rhomboidea; Cardamine rhomboidea.
rotundifolia; Draba Caroliniana.
rupestris; hirsuta.
sagittata; hirsuta.
sparsiflora; Holbœllii.
Thaliana; Sisymbrium Thaliana.
tuberosa; Cardamine rhomboidea.
Virginica; Cardamine hirsuta.

BARBAREA vulgaris, R. Br. See syn. in DC. Syst. 2. 206; Ledeb. Fl. Ross. 1. 114; Regel, Fl. Ost-Sib. 1. 153; Hook. f. Arct. Pl. 313. — Nutt. Genera, 2. 67. Cham. & Schlecht. in Linn. 1. 15. Hook. Fl. Bor.-Am. 1. 39; Lond. Jour. Bot. 6. 69. Torr. & Gray, Fl. 1. 75. Torrey, Fl. N. Y. 1. 52; Bot. Wilkes, 226. Gray, Genera, 1. 148, **t. 62;** Manual, 69. Seem. Bot. Herald, 51. Cooper, Pac. R. Rep. 12. 56. Hook. f. Arct. Pl. 284 & 313. Pl. Bourgeau, 254. Rothr. Fl. Alask. 442. Boland. Cat. 4. Watson, King's Rep. 5. 16.

Var. **arcuata,** Koch. Regel, l. c. 157. Gray, Manual, 69.

B. arcuata, Bess. Bongard, Sitch. 124. Ledeb. Fl. Ross. 1. 115, with syn.

B. vulgaris, var. Benth. Pl. Hartw. 297. Torrey, Pac. R. Rep. 4. 65. Mex. Bound. 33. Cooper, Pac. R. Rep. 6. 66.

Var. **gracilis,** DC. Torr. & Gray, Fl. 1. 75. Watson, King's Rep. 5. 16.

Var. **stricta,** Regel, l. c. 155. Gray, Manual, 69.

B. præcox. Richards. Frankl. Journ. 15. Cham. & Schlecht. in Linn. 1. 15. Hook. Fl. Bor.-Am. 1. 39. Torr. & Gray, Fl. 1. 75. Pl. Bourgeau, 254.

B. PRÆCOX, R. Br. Gray, Manual, 69.

BISCUTELLA Californica. Benth. & Hook. Genera, 1. 91.

Dithyræa Californica. Harv. in Lond. Jour. Bot. 4. 77, t. 5. Walp. Rep. 5. 38; Ann. 3. 821. Engelm. in Wisliz. Rep. 12. Gray, Pl. Wright. 2. 14; Ives's Rep. 7. Torrey, Pac. R. Rep. 4. 66 & 5. 359; Mex. Bound. 34.

B. Wislizeni. Benth. & Hook. Genera, 1. 91.

Iberis, n. sp. Torrey, Ann. Lyc. N. Y. 2. 166.

Dithyræa Wislizeni. Engelm. in Wisliz. Rep. 11. Gray, Pl. Lindh. 150; Pl. Fendl. 116; Pl. Wright. 1. 10 & 2. 14; Pl. Thurb. 299; Ives's Rep. 7. Torrey, Marcy's Rep. 280, t. 2; Sitgr. Rep. 155 & 175; Pac. R. Rep. 4. 66 & 7. 8; Mex. Bound. 34. Walp. Ann. 3. 281. Torr. & Gray, Pac. R. Rep. 2. 159.

BRASSICA ALBA. Gray, Manual, 70. Boland. Cat. 5.

Sinapis alba, Linn. Gray, Manual, 1 ed. 38. C. E. Smith, Proc. Acad. Philad. 1867, 17.

B. CAMPESTRIS, Linn. Gray, Manual, 71. Watson, King's Rep. 5. 28.

B. NIGRA, Koch. Gray, Manual, 71. Boland. Cat. 5. Watson, King's Rep. 5. 28.

Sinapis nigra, Linn. Torr. & Gray, Fl. 1. 99. Torrey, Fl. N. Y 1. 61; Pac. R. Rep. 7. 8. Gray, Pl. Fendl. 9; Manual, 1 ed. 38; Pac. R. Rep. 12. 41.

B. RAPA, Linn. Hook. f. Arct. Pl. 286.

B. SINAPISTRUM, Boiss. Gray, Manual. 70. Coulter, Hayd. Rep. 1872, 761.

Sinapis arvensis, Linn. Torr. & Gray, Fl. 1. 99. Torrey, Fl. N. Y. 1. 61; Pac. R. Rep. 7. 8. Gray, Manual, 1 ed. 38. Hook. f. Arct. Pl. 286.

BRAYA alpina, Sternb. & Hoppe. See syn. in Hook. f. Arct. Pl. 286 & 319; Fournier, Mon. Sisymbr. 131, & Trautvetter, Trud. Petr. 1. 59, under *Sisymbrium alpinum*. — Deless. Icon. Sel. 2. 7, t. 22. Hook. Exot. Fl. 2, t. 121; Jour. Linn. Soc. 5. 82. A. Braun in Flora, 14^2. 561, t. 2.

Var. **Americana.** Hook. Fl. Bor.-Am. 1. 65. Torr. & Gray, Fl. 1. 111.

Var. **glabella.**

B. glabella. Richards. Frankl. Journ. 15. DC. Prodr. 1. 141. Spreng. Syst. 2. 881. Hook. Fl. Bor.-Am. 1. 65. Don, Mill. 1. 160. Torr. & Gray, Fl. 1. 111. Walp. Rep. 1. 172. Bunge, Ann. Sci. Nat. 2. 18. 222. Dietr. 3. 688. Seem. Bot. Herald, 54 & 55.

Platypetalum purpurascens. R. Br. in Parry's 1st Voy. 267 (Flora, 7^2, Beil. 71). Hook. Fl. Bor.-Am. 1. 66, t. 23. Don, Mill. 1. 268. Torr. & Gray, Fl. 1. 111. Hornem. Fl. Dan. 13, t. 2295. Walp. Rep. 1. 174. Dietr. 3. 674. Lange, Fl. Grönl. 130. Hook. f. Jour. Linn. Soc. 1. 116 & 121. Dickie, same, 3. 110.

P. dubium. R. Br. ll. cc. Hook. l. c. Don, l. c. Torr. & Gray, l. c. Walp. l. c. Dietr. l. c.

B. arctica. Hook. in Parry's 2d Voy. 387.

Sisymbrium alpinum, var. *glabellum.* Trautv. l. c.

B. purpurascens. Bunge; Ledeb. Fl. Ross. 1. 195.

B. Eschscholtziana. Benth. & Hook. Genera, 1. 83.

Aphragmus Eschscholtzianus. Andrz. in DC. Prodr. 1. 210. Don, Mill. 1. 228. Torr. & Gray, Fl. 1. 112. Dietr. 3. 675. Rothr. Alask. 443.

Oreas involucrata. Cham. & Schlecht. in Linn. 1. 29, t. 1. Hook. Fl. Bor.-Am. 1. 67. Don, Mill. 2. 215.

Orobium involucratum. Reich. Consp. 185.

B. pilosa. Hook. Fl. Bor.-Am. 1. 65, t. 17. Don, Mill. 1. 160. Torr. & Gray, Fl. 1. 111. Walp. Rep. 1. 172. Dietr. 3. 688. Seem. Bot. Herald, 51. Hook. f. Arct. Pl. 286 & 319.

B. rosea. Bunge, Del. Sem. Dorp. 1839, 7 (Litt. Ber. zu Linn. 1840, 118); Ann. Sci. Nat. 2. 18. 222; Ledeb. Fl. Ross. 1. 195. Walp. Rep. 1. 172. Hook. f. Arct. Pl. 286 & 319.

Sisymbrium alpinum, var. *roseum*. Trautv. l. c.

CAKILE Americana. Nutt. Genera, 2. 62. DC. Syst. 2. 429 & Prodr. 1. 185, excl. var. Spreng. Syst. 2. 852. Don, Mill. 1. 200. Richard, Fl. Cuba, 69, under *C. maritima*. Gray, Genera, 1. 170, t. **74**; Manual, 75. Griseb. Fl. Brit. W. Ind. 15. Smith, Proc. Acad. Philad. 1867, 18.

C. maritima. Pursh, 434. Hook. f. Arct. Pl. 286.

Bunias edentula. Bigel. Fl. Bost. 157.

C. edentula. Hook. Fl. Bor.-Am. 1. 59.

C. maritima, var. *Americana*. Torr. & Gray, Fl. 1. 119. Torrey, Ann. Lyc. N. Y. 4. 92; Fl. N. Y. 1. 66.

C. maritima, Scop. See syn. in DC. Syst. 2. 428.

Var. **æqualis.** Chapman, 31.

C. æqualis, L'Her. DC. Syst. 2. 430; Prodr. 1. 185. Deless. Icon. Sel. 2. t. **57.** Griseb. l. c. 14, with syn.

C. Americana, var. *Cubensis*. DC. Syst. 2. 430; Prodr. 1. 185.

C. Americana. Elliott, 2. 137.

C. maritima. Richard, Fl. Cuba, 66, in part.

CAMELINA SATIVA, Crantz. Beck, Bot. 27. Darling. Fl. Cestr. 379. Torr. & Gray, Fl. 1. 110. Torrey, Fl. N. Y. 1. 63. Chapman, 30. Pl. Bourgeau, 254. Gray, Manual, 73. Porter, Fl. Col. 10.

CAPSELLA BURSA-PASTORIS, Moench. Walt. Fl. Car. 173. Richards. Frankl. Journ. 16. Hook. Fl. Bor.-Am. 1. 69. Darling. Fl. Cestr. 380. Torr. & Gray, Fl. 1. 117. Torrey, Nicol. Rep. 145; Fl. N. Y. 1. 65; Mex. Bound. 35; Bot. Wilkes, 234. Seem. Bot. Herald, 50. Parry, Pl. Minn. 609. Newberry, Pac. R. Rep. 6. 66. Cooper, same, 12. 56. Gray, same, 12. 41; Manual, 73. Lange, Pl. Grönl. 130. Aschers. in Flora, 43. 370. Chapman, 30. Hook. f. Arct. Pl. 286. Anderson, Cat. 117. Boland. Cat. 5. Watson, King's Rep. 5. 28.

Thlaspi Bursa-pastoris, Linn. Pursh, 435. Elliott, 2. 141.

C. divaricata. Walp. Rep. 1. 175. Watson, King's Rep. 5. 28.

Hymenolobus divaricatus. Nutt.; Torr. & Gray, Fl. 1. 117. Hook. Icon. t. **277.** Dietr. 3. 664. Torrey, Mex. Bound. 35.

H. erectus. Nutt.; l. c. Hook. Icon., under t. 277. Dietr. l. c.

C. erecta. Walp. Rep. 1. 175.

C. pubens. Benth. & Hook. Genera, 1. 86

Hymenolobus pubens. Gray, Pl. Wright. 1. 9 & 2. 14. Walp. Ann. 4. 212. Torrey, Mex. Bound. 34.

CARDAMINE angulata. Hook. Fl. Bor.-Am. 1. 44; Bot. Misc. 1. 343, t. **69.** Don, Mill. 1. 168. Torr. & Gray, Fl. 1. 84. Hook. & Arn. Bot. Beechey, 135. Walp. Rep. 1. 136. Dietr. 3. 698. Cooper, Pac. R. Rep. 12. 56. Regel, Fl. Ost-Sib. 1. 172, excl. var. Gray, Proc. Am. Acad. 8. 376. Torrey, Bot. Wilkes, 228.

C. bellidifolia. Linn. Spec. 654. See syn. in DC. Syst. 2. 249; Ledeb. Fl. Ross. 1. 123; Regel, Fl. Ost-Sib. 1. 170; Hook. f. Arct. Pl. 314. — R. Br. in Parry's 1st Voy. 198. Cham. & Schlecht. in Linn. 1. 19. Hook. Fl. Bor.-Am. 1. 44. Don, Mill. 1. 167. Beck, Bot. 31. Torr. & Gray, Fl. 1. 84. Walp. Rep. 1. 135. Dietr. 8. 695. Seem. Bot. Herald, 54. Lange, Pl. Grönl. 131. Dickie, Jour. Linn. Soc. 1. 110. Aschers. in Flora, 43. 369. Hook. f. Arct. Pl. 284 & 314. Gray, Manual, 66.

C. rotundifolia. Bigel. Fl. Bost. 2 ed. 252.

C. Lenensis. Andrz.; Ledeb. Icon. t. **268**; Fl. Alt. 3. 33; Fl. Ross. 1. 123. Walp. Rep. 2. 757. Rothr. Alask. 443.

C. Breweri. Watson, Proc. Am. Acad. 10. 339. Brew. & Wats. Bot. Calif. 1. 31.

C. paucisecta, var. *angulata.* Anderson, Cat. Pl. Nevada, 117.

C. paucisecta. Porter, Hayd. Rep. 1870, 473; 1871, 478. Coulter, same, 1872, 760.

C. oligosperma. Gray, Proc. Am. Acad. 8. 376, not Nutt.

C. Clematitis. Shuttl. in Herb. Gray, ined.

Nasturtium officinale. Torr. & Gray, Fl. 1. 666.

C. cordifolia. Gray, Pl. Fendl. 8; Am. Jour. Sci. 2. 33. 243; Proc. Acad. Philad. 1863, 57; Proc. Am. Acad. 8. 376. Walp. Ann. 2. 35. Watson, King's Rep. 5. 19. Porter, Fl. Col. 6. Torrey, Bot. Wilkes, 229.

C. rhomboidea. Durand, Fl. Utah, 159. Porter, Hayd. Rep. 1871, 478.

C. hirsuta. Linn. Spec. 655. See syn. in DC. Syst. 2. 259; Ledeb. Fl. Ross. 1. 127; Hook. Fl. Tasm. 1. 20. — Richards. Frankl. Journ. 15. Cham. & Schlecht. in Linn. 1. 20. Hook. Fl. Bor.-Am. 1. 45; Jour. Bot. 1. 191; Lond. Jour. Bot. 6. 69. Bong. Sitch. 125. Beck, Bot. 31. Darling. Fl. Cestr. 385. Torr. & Gray, Fl. 1. 85. Torrey, Fl. N. Y. 1. 57; Bot. Wilkes, 229. Parry, Pl. Minn. 609. Cooper, Pac. R. Rep. 12. 56. Turcz. Bull. Soc. Mosc. 27². 294. Lesqx. Fl. Ark. 349. Chapman, 26. Gray, Proc. Acad. Philad. 1863, 57; Manual, 67; Proc. Am. Acad. 8. 377, excl. var. Pl. Bourgeau, 254. Hook. f. Arct. Pl. 284 & 314. Rothr. Alask. 443. Boland. Cat. 5. Watson, King's Rep. 5. 20. Coulter, Hayd. Rep. 1872, 760. Porter, Fl. Col. 6.

C. Pennsylvanica. Muhl.; Willd. Spec. 3. 486. Persoon, 2. 196. Poir. Suppl. 2. 395. Pursh, 240. DC. Syst. 2. 258; Prodr. 1. 151. Elliott, 2. 144. Don, Mill. 1. 169.

? *Sisymbrium Nasturtium.* Walt. Fl. Car. 174.

Var. sylvatica. Gray, Manual, 67.

C. Virginica. Michx. Fl. 2. 29, not Linn. Pursh, 439. DC. Syst. 2. 258; Prodr. 1. 151. Elliott, 2. 144. Don, Mill. 1. 169. Dietr. 3. 698.

Arabis Virginica. Poir. Suppl. 1. 413.

C. sylvatica, Link. DC. Syst. 2. 260, and syn. Regel, Fl. Ost-Sib. 1. 171.

C. hirsuta, var. *Virginica.* Torr. & Gray, Fl. 1. 85. Chapman, 26.

C. oligosperma. Nutt.; Torr. & Gray, Fl. 1. 85. Walp. Rep. 1. 136. Dietr. 3. 698. Benth. Pl. Hartw. 297. Torrey, Pac. R. Rep. 4. 65; Bot. Wilkes, 229. Cooper, Pac. R. Rep. 12. 56. Boland. Cat. 5. Coulter, Hayd. Rep. 1872, 760. Gray, Proc. Am. Acad. 8. 376.

C. hirsuta, var. Gray, Proc. Am. Acad. 8. 377.

C. paucisecta. Benth. Pl. Hartw. 297. Walp. Ann. 2. 35. Durand, Pl. Pratten. 80. Boland. Cat. 5.

C. purpurea. Torr. & Gray, Fl. 1. 667.

C. angulata. Torrey, Pac. R. Rep. 4. 65, & 7. 7; Mex. Bound. 32. Boland. Cat. 5.

C. pratensis. Linn. Spec. 656. See syn. in DC. Syst. 2. 256; Ledeb. Fl. Ross. 1. 125; Regel, Fl. Ost-Sib. 1. 175. — Pursh, 440. Richards. Frankl. Journ. 15. Hook. Fl. Bor.-Am. 1. 45. Beck, Bot. 31. Torr. & Gray, Fl. 1. 84. Hook. & Arn. Bot. Beechey, 121. Torrey, Fl. N. Y. 1. 57. Seem. Bot. Herald, 24 & 51. Lange, Pl. Grönl. 131. Hook. f. Arct. Pl. 285 & 314. Rothr. Alask. 443. Gray, Manual, 66.

? *C. digitata.* Richards. Frankl. Journ. 15. DC. Prodr. 1. 158. Spreng. Syst. 2. 888. Cham. & Schlecht. in Linn. 1. 19. Hook. Fl. Bor.-Am. 1. 45. Don, Mill. 1. 170. Torr. & Gray, Fl. 1. 86. Ledeb. Fl. Ross. 1. 128. Dietr. 3. 697. Seem. Bot. Herald, 24 & 51. Hook. f. in Jour. Linn. Soc. 1. 120. Rothr. Alask. 443.

Var. **angustifolia.** Hook. Fl. Bor.-Am. 1. 45. Don, Mill. 1. 169. Durand, Pl. Kane, 186.

C. purpurea. Cham. & Schlecht. in Linn. 1. 20. Hook. Fl. Bor.-Am. 1. 44. Don, Mill, 1. 168 & 170. Torr. & Gray, Fl. 1. 84. Hook. & Arn. Bot. Beechey, 121. Ledeb. Fl. Ross. 1. 127. Walp. Rep. 1. 136. Dietr. 3. 697. Seem. Bot. Herald, 23. Hook. f. Arct. Pl. 215. Rothr. Alask. 443.

C. rhomboidea. DC. Syst. 2. 246; Prodr. 1. 149. Spreng. Syst. 2. 885. Don, Mill. 1. 167. Hook. Bot. Misc. 3. 239, **t. 108.** Beck, Bot. 30. Darling. Fl. Cestr. 384. Torrey, Fl. N. Y. 1. 56. Gray, Genera, 1. 136, **t. 55**; Manual, 66. Parry, Pl. Minn. 609. Chapman, 25.

Arabis bulbosa. Schreb.; Muhl. Ind. Fl. Lanc. 174. Spreng. Mant. Fl. Hal. 46.

A. rhomboidea. Persoon, 2. 204. Poir. Suppl. 1. 414. Pursh, 437. Nutt. Genera, 2. 70. Elliott, 2. 149. Bigel. Fl. Bost. 2 ed. 252. Darling. in Am. Jour. Sci. 1. 18. 357 (Litt. Ber. zu Linn. 1832, 5).

A. tuberosa. Persoon, 2. 204. Poir. Suppl. 1. 414.

? *Thlaspi* (?) *tuberosum.* Nutt. Genera, 2. 65. DC. Syst. 2. 382; Prodr. 1. 177. Spreng. Syst. 2. 879. Don, Mill. 1. 192. Beck, Bot. 25. Torr. & Gray, Fl. 1. 114. Dietr. 3. 658.

C. rotundifolia, var. *a.* Torr. & Gray, Fl. 1. 83.

C. rotundifolia. Michx. Fl. 2. 30. Persoon, 2. 195. Poir. Suppl. 2. 394. Pursh, 439. DC. Syst. 2. 247; Prodr. 1. 149. Spreng. Syst. 2. 885. Hook. Fl. Bor.-Am. 1. 44; Bot. Misc. 3. 239, **t. 109.** Beck, Bot. 30. Darling. ll. cc.; Fl. Cestr. 384. Don, Mill. 1. 163. Gray, Am. Jour. Sci. 1. 42. 30 (Lond. Jour. Bot. 1. 237); Manual, 66. Dietr. 3. 695. Chapman, 25.

Arabis Douglassii. Torrey, Am. Jour. Sci. 1. 4. 63.

A. rhomboidea, var. *purpurea.* Torrey, l. c. 66.

C. rotundifolia, vars. *β.* & *γ.* Torr. & Gray, Fl. 1. 83.

C. spathulata. Michx. Fl. 2. 29. Persoon, 2. 195. Pursh, 439. DC. Syst. 2. 247; Prodr. 1. 149. Elliott, 2. 143. Spreng. Syst. 2. 885. Don, Mill. 1. 167. Torr. & Gray, Fl. 1. 84. Dietr. 3. 695. Chapman, 26. Wood, Cl.-Book, 231; Bot. & Fl. 38. Known only from Michaux ?

C. angulata; paucisecta.
articulata; Parrya nudicaulis.
digitata; pratensis.
diphylla; Dentaria diphylla.
Engelmanniana; Arabis Ludoviciana.
heterophylla; Dentaria heterophylla.
hirsuta; oligosperma.
laciniata; Dentaria laciniata.
Lenensis; bellidifolia.
Ludoviciana; Arabis Ludoviciana.
maxima; Dentaria maxima.
Menziesii; Sisymbrium canescens.
multifida; Sisymbrium canescens, Dentaria multifida.
C. nudicaulis; Parrya nudicaulis.
oligosperma; Breweri.
parviflora; hirsuta.
paucisecta; Breweri.
Pennsylvanica; hirsuta.
purpurea; paucisecta.
rhomboidea; cordifolia.
rotundifolia; bellidifolia, rhomboidea.
sylvatica; hirsuta.
teres; Nasturtium tanacetifolium.
uniflora; Leavenworthia Michauxii.
Virginica; hirsuta, Arabis Ludoviciana.

CAULANTHUS Coulteri. Watson, King's Rep. 5. 27.

Streptanthus heterophyllus. Gray, Proc. Bost. Nat. Hist. Soc. 7. 145; Proc. Am. Acad. 6. 185, in part.

S. Coulteri. Gray; Watson, King's Rep. 5. 19.

C. crassicaulis. Watson, King's Rep. 5. 27.

Streptanthus crassicaulis. Torrey, Stansb. Rep. 383, t. 1 (Flora, 86. 702). Walp. Ann. 4. 192. Durand, Fl. Utah, 159. Gray, Proc. Am. Acad. 6. 186. Watson, l. c. 19.

C. hastatus. Watson, King's Rep. 5. 28, t. 23. Brew. & Wats. Bot. Calif. 1. 36.

C. pilosus. Watson, l. c. 27. Brew. & Wats. l. c.

C. procerus. Watson, l. c. 27. Brew. & Wats l. c.

Streptanthus flavescens. Gray, Proc. Am. Acad. 6. 186, in part.

S. procerus. Brewer; Gray, Proc. Am. Acad. 6. 519. Boland. Cat. 5. Watson, King's Rep. 5. 19.

CHEIRANTHUS asper. Cham. & Schlecht. in Linn. 1. 14, excl. syn. Torrey, Mex. Bound. 32.

C. capitatus. Dougl.; Hook. Fl. Bor.-Am. 1. 38; Lond. Jour. Bot. 6. 68. Don, Mill. 1. 154. Hook. & Arn. Bot. Beechey, 135. Walp. Rep. 1. 125. Dietr. 3. 688. Benth. Pl. Hartw. 297. Torrey, Pac. R. Rep. 4. 64. Boland. Cat. 4.

Erysimum grandiflorum. Nutt.; Torr. & Gray, Fl. 1. 96 & 667. Walp. Rep. 1. 170. Dietr. 3. 716.

C. Menziesii. Benth. & Hook. Genera, 1. 68. Watson, King's Rep. 5. 14.

Hesperis Menziesii. Hook. Fl. Bor.-Am. 1. 60. Torr. & Gray, Fl. 1. 91. Hook. & Arn. Bot. Beechey, 322, t. 75. Walp. Rep. 1. 162. Dietr. 3. 706.

Phœnicaulis cheiranthoides. Nutt.; Torr. & Gray, Fl. 1. 89. Dietr. 3. 701. Torrey, Bot. Wilkes, 229.

C. pygmæus. "Adams in Mem. Soc. Nat. Mosc. 5. 114." DC. Syst. 2. 187; Prodr. 1. 137. Don, Mill. 1. 155. Benth. & Hook. Genera, 1. 68.

C. Pallasii. Pursh, 436. DC. Syst. 2. 186; Prodr. 1. 136. Spreng. Syst. 2. 895. Hook. Fl. Bor.-Am. 1. 28. Don, Mill. 1. 155. Torr. & Gray, Fl. 1. 71. Dietr. 3. 684.

Hesperis pygmæa. Hook. Fl. Bor.-Am. 1. 60, t. 19. Hook. & Arn. Bot. Beechey, 122.

H. minima. Torr. & Gray, Fl. 1. 90. Dietr. 3. 705.

H. Pallasii. Torr. & Gray, Fl. 1. 666. Seem. Bot. Herald, 24. Durand, Pl. Kane, 186. Hook. f. Arct. Pl. 285 & 319. Rothr. Alask. 443.

Hesperis Hookeri. Ledeb. Fl. Ross. 1. 174. Hook. f. in Jour. Linn. Soc. 1. 121. Trautv. in Middend. Reise, 1. 59.

Erysimum pygmæum. Gay, Erysim. 4.

Sisymbrium pygmæum. Trautv. in Trud. Petr. 1. 60 (Trim. Jour. Bot. 2. 1. 215).

COCHLEARIA Anglica. Linn. Spec. 2 ed. 903. See syn. in DC. Syst. 2. 364; Hook. f. Arct. Pl. 318. — Hook. Fl. Bor.-Am. 1. 57. Torr. & Gray, Fl. 1. 109. Hook. & Arn. Bot. Beechey, 121. Ledeb. Fl. Ross. 1. 157. Seem. Bot. Herald, 24. Durand, Pl. Kane, 188. Hook. f. in Jour. Linn. Soc. 1. 116 & 121; Arct. Pl. 285 & 318. Dickie, Jour. Linn. Soc. 3. 110. Rothr. Alask. 443.

C. Danica. Linn. Spec. 647. See syn. in DC. Syst. 2. 366. — Cham. & Schlecht. in Linn. 1. 26. Hornem. Fl. Dan. 11, t. 1934. Hook. Fl. Bor.-Am. 1. 57. Torr. & Gray, Fl. 1. 110. Ledeb. Fl. Ross. 1. 157. Hook. f. Arct. Pl. 285 & 318.

C. officinalis. Linn. Spec. 647. See syn. in DC. Syst. 2. 364; Hook. f. Arct. Pl.

285; Trautv. in Trud. Petr. 1. 57 (Trim. Jour. Bot. 1. 215). — Greville, Mem. Soc. Wern. 3. 431. Meyer, Fl. Lab. 86. Hook. Fl. Bor.-Am. 1. 57. Schlecht. in Linn. 10. 102. Torr. & Gray, Fl. 1. 110. Seller, Ann. & Mag. Nat. Hist. 1. 16. 167. Durand, Pl. Kane, 188. Lange, Pl. Grönl. 129. Hook. f. in Jour. Linn. Soc. 5. 82; Arct. Pl. 285 & 318. Dickie, Jour. Linn. Soc. 11. 33.

C. Grænlandica. Linn. Spec. 647. Hill, Veg. Syst. 11, **t. 47. f. 4.** Lam. Dict. 2. 165. Retz, Fl. Scand. 2. ed. 154. Willd. Spec. 3. 449. Persoon, 2. 186. Lodd. Cab. **t. 45.** DC. Syst. 2. 366; Prodr. 1. 173. Maund, Bot. Gard. 1, **t. 64.** Torr. & Gray, Fl. 1. 110.

C. fenestrata. R. Br. in Ross' Voy. 143; Parry's Voy. 266. DC. Syst. 2. 367; Prodr. 1. 174. Hook. in Trans. Linn. Soc. 14. 365; Fl. Bor.-Am. 1. 57. Don, Mill. 1. 189. Torr. & Gray, Fl. 1. 109. Dietr. 3. 652. Seller, l. c. Seem. Bot. Herald, 24 & 54. Durand, Pl. Kane, 188. Lange, Pl. Grönl. 129. Dickie, Jour. Linn. Soc. 3. 110. Rothr. Alask. 443. [*Eutrema Rossii.* Spreng. Syst. 2. 880.] — Referred to *C. Anglica* by Hook. f. Malmgren in Seem. Jour. Bot. 2. 138 includes *C. Grænlandica* and *Danica*, and considers it scarcely distinct from *C. Anglica.*

C. arctica. Schlecht.; DC. Syst. 2. 367; Prodr. 1. 174. Carried to *C. Danica* by Cham. & Schlecht. Kept distinct by Trautv. l. c., and in Middend. Reise, 1. 58, with syn.

C. oblongifolia. DC. Syst. 2. 363; Prodr. 1. 173. Cham. & Schlecht. in Linn. 1. 26. Spreng. Syst. 2. 877. Hook. Fl.-Bor. Am. 1. 56. Bong. Sitch. 125. Don, Mill. 1. 188. Torr. & Gray, Fl. 1. 108. Hook. & Arn. Bot. Beechey, 121. Ledeb. Fl. Ross. 1. 157. Dietr. 3. 652. Seem. Bot. Herald. 24, 51 & 55. Rothr. Alask. 443. Referred to *C. Anglica* by Hook. f.; to *C. arctica*, var. *oblongifolia*, by Trautv. in Middend. Reise, 1. 59.

C. sisymbrioides. DC. Syst. 2. 368; Prodr. 1. 174. Ledeb. Fl. Ross. 1. 158. Hook. f. Arct. Pl. 285 & 318, the only authority for an American habitat.

C. tridactylites. Banks; DC. Syst. 2. 367; Prodr. 1. 174. Spreng. Syst. 2. 877. Hook. Fl. Bor.-Am. 1. 57. Don, Mill. 1. 189. Torr. & Gray, Fl. 1. 110. Dietr. 3. 653.

DENTARIA diphylla. Michx. Fl. 2. 30. Persoon, 2. 194. Poir. Suppl. 2. 465. Sims, Bot. Mag. **t. 1465.** Pursh, 438. Nutt. Genera, 2. 66. DC. Syst. 2. 274; Prodr. 1. 155. Elliott, 2. 142. Torrey, Compend. 248; Fl. N. Y. 1. 58. Spreng. Syst. 2. 884. Hook. Fl. Bor.-Am. 1. 46; Journ. Bot. 1. 192. Don, Mill. 1. 172. Beck, Bot. 28. Torr. & Gray, Fl. 1. 87. Bigel. Fl. Bost. 3 ed. 271. Eat. & Wr. 222. Dietr. 3. 700. Chapman, 26. Gray, Manual, 65.

D. bifolia. Stokes, Bot. Mat. Med. 3. 443.

Cardamine diphylla. Wood, Bot. & Fl. 37. The genus is reduced to *Cardamine* by Benth. & Hook. in Gen. Pl. 1. 70.

D. heterophylla. Nutt. Genera, 2. 66. Barton, Comp. Fl. Phil. 2. 54. DC. Syst. 2. 274; Prodr. 1. 155. Spreng. Syst. 2. 884. Torrey, Compend. 249. Don, Mill. 1. 172. Beck. Bot. 28. Torr. & Gray, Fl. 1. 87. Eat. & Wr. 222. Dietr. 3. 700. Chapman, 26. Gray, Manual, 65. Buchan, Canad. Nat. 14. 300. Coulter, Bot. Gazette, 1. 8; uniting *D. laciniata, maxima & multifida.*

Cardamine heterophylla. Wood, Bot. & Fl. 38.

D. laciniata. Muhl.; Willd. Spec. 3. 479. Persoon, 2. 194. Poir. Suppl. 2. 465. Pursh, 438. Muhl. Cat. 63. Nutt. Genera, 2. 66. DC. Syst. 2. 273; Prodr. 1. 155. Barton, Comp. Fl. Phil. 2. 53; Fl. N. Am. 3. 4, **t. 72.** Elliott, 2. 142. Bigel. Fl. Bost. 2 ed. 254. Spreng. Syst. 2. 883. Torrey, Compend. 248. Hook. Fl. Bor.-Am. 1. 46; Journ. Bot. 1. 192. Don, Mill. 1. 172. Beck, Bot. 28. Darling. Fl. Cestr.

385. Torr. & Gray, Fl. 1. 86, excl. var. δ. Walp. Rep. 1. 138. Eat. & Wr. 222. Dietr. 3. 700. Torrey, Fl. N. Y. 1. 58; Nicol. Rep. 145. Nees, Pl. Neuwied, 4. Chapman, 26. Gray, Manual, 66.

D. concatenata. Michx. Fl. 2. 30. Persoon, 2. 194. Poir. Suppl. 2. 465.

Cardamine laciniata. Wood, Bot. & Fl. 38.

D. macrocarpa. Nutt.; Torr. & Gray, Fl. 1. 88. Walp. Rep. 1. 138. Dietr. 3. 700.

D. maxima. Nutt. Genera, 2. 66. DC. Syst. 2. 275; Prodr. 1. 155. Spreng. Syst. 2. 884. Don, Mill. 1. 172. Beck, Bot. 29. Torr. & Gray, Fl. 1. 87. Dietr. 3. 700. Torrey, Fl. N. Y. 1. 59. Gray, Genera, 1. 138, t. **56**; Manual, 65. Ruger, Torr. Bulletin, 1. 6.

D. laciniata, var. δ. Torr. & Gray, Fl. 1. 86.

Cardamine maxima. Wood, Bot. & Fl. 38.

D. multifida. Muhl. Cat. 63. Elliott, 2. 142. Torr. & Gray, Fl. 1. 87. Walp. Rep. 1. 138. Dietr. 3. 700. Chapman, 26. Gray, Manual, 66.

D. dissecta. Leavenworth, Am. Jour. Sci. 1. 7. 62.

Cardamine multifida. Wood, Bot. & Fl. 38, not Pursh.

D. tenella. Pursh, 439. Poir. Suppl. 5. 654. Nutt. Genera, 2. 66. DC. Syst. 2. 274; Prodr. 1. 155. Spreng. Syst. 2. 884. Don, Mill. 1. 172. Torr. & Gray, Fl. 1. 87. Eat. & Wr. 222. Dietr. 3. 700. Cooper, Pac. R. Rep. 12. 56. Regel, Fl. Uss. 22. Torrey, Bot. Wilkes, 229. Brew. & Wats. Bot. Calif. 1. 30.

D. tenuifolia. Hook. Fl. Bor.-Am. 1. 46; not Ledeb.

DRABA alpina. Linn. Spec. 642. See syn. in DC. Syst. 2. 338; Lindberg in Linn. 13. 319; Hook. f. Arct. Pl. 285 & 316; Regel, Fl. Ost-Sib. 1. 181. — Greville, Mem. Soc. Wern. 3. 424. R. Br. in Parry's 1st Voy. 265. Richards. Frankl. Journ. 16. Hook. in Trans. Linn. Soc. 14. 363; Parry's 2d Voy. 385; Fl. Bor.-Am. 1. 50. Cham. & Schlecht. in Linn. 1. 22. Don, Mill. 1. 183. Torr. & Gray, Fl. 1. 103. Hook. & Arn. Bot. Beechey, 121. Ledeb. Fl. Ross. 1. 146. Seem. Bot. Herald, 24 & 54. Durand, Pl. Kane, 186. Lange, Pl. Groenl. 130. Hook. f. in Journ. Linn. Soc. 1. 116 & 121, and 5 82. Dickie, same, 3. 110. Gray, Am. Journ. Sci. 2. 33. 243. Pl. Bourgeau, 254. Rothr. Alask. 443. Watson, King's Rep. 5. 20. Porter, Hayd. Rep. 1871, 478; Fl. Col. 7. Coulter, Hayd. Rep. 1872, 760. Brew. & Wats. Bot. Calif. 1. 29

Var. **hebecarpa.** Lindb. in Linn. 13. 320. Regel, Fl. Ost-Sib. 1. 183.

D. alpina, var. β. R. Br. in Parry's 1st Voy. 265. Hook. Fl. Bor.-Am. 1. 50. Torr. & Gray, Fl. 1. 103. Durand, Pl. Kane, 186.

Var. **algida.** Regel, Fl. Ost-Sib. 1. 183. Watson, King's Rep. 5. 21. Brew. & Wats. Bot. Calif. 1. 29.

D. algida. Adams; DC. Syst. 2. 337; Prodr. 1. 167. Cham. & Schlecht. in Linn. 1. 21. Hook. l. c. Torr. & Gray, Fl. 1. 101 Eat. & Wr. 228. Dietr. 3. 646. Rothr. Alask. 443. Trautv. in Act. Hort. Petrop. 1. 53 (Trim. Journ. Bot. 1. 214), including *D. pilosa* & *ochroleuca.*

D. macrocarpa. Adams, Mem. Soc. Mosc. 9. 249.

D. pilosa. Adams; DC. Syst. 2. 336. Regel, Fl. Ost-Sib. 1. 184, with syn.; Descr. Pl. Nov. fasc. 5. 22.

D. pauciflora. R. Br. in Parry's 1st Voy. 266 (Flora, 7², Beil. 71). Hook. in Parry's 2d Voy. 385; Fl. Bor.-Am. 1. 51. Torr. & Gray, Fl. 1. 104. Walp. Rep. 1. 151. Eat. & Wr. 228. Kept distinct by Trautv. in Act. Hort. Petrop. 4. 55, with syn.

Var. **glacialis.** Dickie, Journ. Linn. Soc. 11. 33. Watson, King's Rep. 5. 21. Coulter, Hayd. Rep. 1872, 760. Brew. & Wats. l. c.

D. glacialis. Adams, Mem. Soc. Mosc. 5. 106. DC. Syst. 2. 338; Prodr. 1. 167. Grah. in Edinb. Phil. Journ. 1829, 183. Hook. Fl. Bor.-Am. 1. 51; Lond. Journ. Bot. 6. 71. Torr. & Gray, Fl. 1. 104. Ledeb. Fl. Ross. 1. 147. Walp. Rep. 1. 151. Eat. & Wr. 228. Dietr. 3. 647. Seem. Bot. Herald, 24, 51 & 54. Durand, Pl. Kane, 187. Regel, Fl. Ost-Sib. 1. 186, **t. 5, f. 3, 4**; Descr. Pl. Nov. fasc. 5. 22. Rothr. Alask. 443. Trautv. l. c. 54. Porter, Hayd. Rep. 1871, 478. Coulter, same, 1872, 760. Regel, l. c.

D. incompta. Stev. in Mem. Soc. Mosc. 3. 268. Delcss. Icon. Sel. 2, **t. 44.**

D. oligosperma. Hook. Fl. Bor.-Am. 1. 51. Torr. & Gray, Fl. 1. 104. Walp. Rep. 1. 151. Eat. & Wr. 228. Dietr. 3. 649.

D. densifolia. Nutt.; Torr. & Gray, Fl. 1. 104. Walp. Rep. 1. 151. Dietr. 3. 649. Gray, Proc. Am. Acad. 7. 329.

Var. (?) **micropetala.** Durand, Pl. Kane, 187.

D. micropetala. Hook. in Parry's 2d. Voy. 385; Fl. Bor.-Am. 1. 52. Torr. & Gray, Fl. 104. Walp. l. c. Dietr. l. c. Hook. f. in Jour. Linn. Soc. 1. 116.

Var. (?) **corymbosa.** Durand, Pl. Kane, 187.

D. corymbosa. R. Br. in Ross' Voy. 143. DC. Syst. 2. 343; Prodr. 1. 169. Don, Mill. 1. 184. Hook. Fl. 1. 52. Torr. & Gray, Fl. 1. 105. Dietr. 3. 649. Vahl; Liebm. Fl. Dan. 14, **t. 2418.** Lange, Pl. Grönl. 129. Referred to *D. androsacea* by Hook. f. Arct. Pl. 317.

D. alpina, var. δ. Hook. Fl. Bor.-Am. 1. 52.

D. androsacea. Wahl. Fl. Lapp. 174, **t. 11, f. 5.** See syn. by Lindb. in Linn. 13. 324 & Regel, Fl. Ost-Sib. 1. 188, under *D. Wahlenbergii;* Turcz. Fl. Baic. 1. 135; Hook. f. Arct. Pl. 285 & 316. — Don, Mill. 1. 184. Lange, Pl. Grönl. 130.

D. lactea. Adams, Mem. Soc. Mosc. 5. 194. DC. Syst. 2. 347. Lange, Pl. Grönl. 130. Regel, Fl. Ost-Sib. 1. 195, with syn.

? *D. corymbosa*, R. Br. See under *D. alpina.*

D. Lapponica. Willd.; DC. Syst. 2. 344. R. Br. in Parry's 1st Voy. 266. Cham. & Schlecht. in Linn. 1. 22. Hook. Fl. Bor.-Am. 1. 53. Torr. & Gray, Fl. 1. 105. Durand, Pl. Kane, 187.

D. hirta, var. 3. Hook. in Parry's 2d Voy. 386.

D. Fladnitzensis, Wulf. DC. Syst. 2. 345, with syn. Turcz. Fl. Baic. 1. 133, with syn. Ball, Bull. Bot. Soc. France, 7. 230 & 249; Hook. f. Arct. Pl. 315.

D. nivalis. DC. Syst. 2. 344, not Lilj. Durand, Pl. Kane, 187.

D. Wahlenbergii, Hartm. See Lindb. in Linn. 13. 324; Ledeb. Fl. Ross. 1. 150; Regel, Fl. Ost-Sib. 1. 188, **t. 5, f. 11, 12.** — Vahl; Fl. Dan. 14, **t. 2420.**

D. arabisans. Michx. Fl. 2. 28. Poir. Suppl. 2. 525. DC. Syst. 2. 349; Prodr. 1. 170. Torrey, Compend. 247; Fl. N. Y. 1. 62. Hook. Fl. Bor.-Am. 1. 55. Don, Mill. 1. 185. Beck, Bot. 26. Torr. & Gray, Fl. 1. 106 & 668. Eat. & Wr. 228. Dietr. 3. 651. Gray, Genera, 1. 160, **t. 68**; Manual, 71. Pl. Bourgeau, 254.

D. Arabis. Persoon, 2. 190. Nutt. Genera, 2. 63. Schwein. in Long's Exp. 2, Appx. 115. Spreng. Syst. 2. 876.

D. glabella. Pursh, 434. Poir. Suppl. 5. 661. DC. Syst. 2. 355; Prodr. 1. 172. Hook. Fl. Bor.-Am. 1. 54, in part. Don, Mill. 1. 186. Torr. & Gray, Fl. 1. 107, in part. Eat. & Wr. 227. Aschers. in Flora, 43. 369.

D. incana, var. *glabriuscula.* Gray, Ann. Lyc. N. Y. 3. 223.

D. Henneana. Schlecht. Fl. Lab. in Linn. 10. 100.

D. Canadensis. Brunet, Pl. Canad. 1. 22.

D. aurea. Vahl.; Hornem. "Fl. Œcon. 2 ed. 599"; Fl. Dan. 9, t. **1460.** DC. Syst. 2. 350; Prodr. 1. 170. Spreng. Syst. 2. 875. Hook. Bot. Mag. t. **2934**; Fl. Bor.-Am. 1. 55. Don, Mill. 1. 186. Torr. & Gray, Fl. 1. 107. Dietr. 3. 651. Lange, Pl. Grönl. 130. Aschers. in Flora, 43. 369. Gray, Am. Jour. Sci. 2. 33. 242; Jour. Acad. Philad. 1863, 58. Hook. f. Arct. Pl. 285 & 317. Porter, Hayd. Rep. 1870, 473; 1871, 478; Fl. Col. 7. Watson, King's Rep. 5. 22. Coulter, Hayd. Rep. 1872, 760.

Var. **stylosa.** Gray, Am. Jour. Sci. 2. 33. 242.

D. aurea. Gray, Pl. Fendl. 10. Torrey, Pac. R. Rep. 4. 66.

D. brachycarpa. Nutt.; Torr. & Gray, Fl. 1. 108. Walp. Rep. 1. 152. Dietr. 3. 651. Torrey, Nicol. Rep. 145. Chapman, 29. Gray, Manual, 71.

D. Caroliniana. Walt. Fl. Car. 174. Willd. Spec. 3. 427. Persoon, 2. 190. Poir. Suppl. 2. 525. DC. Syst. 2. 353; Prodr. 1. 171. Elliott, 2. 138. Don, Mill. 1. 186. Beck, Bot. 26. Torr. & Gray, Fl. 1. 109. Dietr. 3. 651. Torrey, Fl. N. Y. 1. 62; Nicol. Rep. 145; Bot. Wilkes, 233. Parry, Pl. Minn. 609. Chapman, 29. Gray, Manual, 72.

? *Arabis reptans.* Lam. Dict. 1. 222. Willd. Spec. 3. 536. Persoon, 2. 204. Pursh, 437. DC. Syst. 2. 242; Prodr. 1. 148. Don, Mill. 1. 166. Torr. & Gray, Fl. 1. 83.

? *D. bifolia.* Muhl. Ind. Fl. Lanc. 173.

D. hispidula. Michx. Fl. 2. 28. Pursh, 433.

Arabis rotundifolia. Raf. in Am. Monthly Mag. 2. 43.

D. umbellata. Muhl. Cat. 62.

Var. **micrantha.** Gray, Manual, 72. Watson, King's Rep. 5. 23.

D. micrantha. Nutt.; Torr. & Gray, Fl. 1. 109. Walp. Rep. 1. 152. Dietr. 3. 651. Engelm. & Gray, Pl. Lindh. 32. Gray, Pl. Fendl. 10; Pl. Wright. 2. 13; Pl. Thurb. 298; Manual, 2 ed. 37; Pac. R. Rep. 12. 41. Torrey, Mex. Bound. 33.

? *D. filicaulis.* Scheele, Linn. 21. 583, fide Gray, Pl. Lindh. 150.

D. crassifolia. Grah. in Edinb. Phil. Journ. 1829, 182 (Litt.-Ber. zu Linn. 1830, 155). Hook. Fl. Bor.-Am. 1. 54. Torr. & Gray, Fl. 1. 106. Walp. Rep. 1. 151. Dietr. 3. 649. Vahl; Liebm. Fl. Dan. 14, t. **2419.** Lange, Pl. Groenl. 130. Gray, Proc. Acad. Philad. 1863, 57. Brew. & Wats. Bot. Calif. 1. 28.

D. Johannis. Gray, Am. Journ. Sci. 2. 33. 242; not Host.

D. cuneifolia. Nutt.; Torr. & Gray, Fl. 1. 108; Pac. R. Rep. 2. 160. Walp. Rep. 1. 152. Eat. & Wr. 229. Dietr. 3. 651. Engelm. & Gray, Pl. Lindh. 32. Gray, Pl. Fendl. 10; Ives' Rep. 6; Manual, 72. Scheele, Roem. Texas, 436. Torrey, Pac. R. Rep. 4. 66. Chapman, 29. Porter, Fl. Col. 8. Parry, Am. Naturalist, 9. 268. Brew. & Wats. Bot. Calif. 1. 28.

? *D. filicaulis & Roemeriana.* Scheele, Linn. 21. 583, fide Gray, Pl. Lindh. 150.

D. Douglasii. Gray, Proc. Am. Acad. 7. 328. Anderson, Cat. 118. Watson, King's Rep. 5. 22.

D. eurycarpa. Gray, Proc. Am. Acad. 7. 520.

D. hirta. Linn. Syst. 10 ed. 1127. See syn. in DC. Syst. 2. 343; Lindb. in Linn. 13. 329; Turcz. Fl. Baic 1. 138; Regel & Til. Fl. Ajan. 49. — Richards. Frankl. Journ. 16. Hook. Trans. Linn. Soc. 14. 364; Parry's 2d Voy. 385; Fl. Bor.-Am. 1. 52. Don, Mill. 1. 184. Torr. & Gray, Fl. 1. 105. Hook. & Arn. Bot. Beechey, 121. Ledeb. Fl. Ross. 1. 151. Vahl.; Liebm. Fl. Dan. 14, t. **2422.** Seller, Ann. & Mag. Nat. Hist. 1. 16. 169. Seem. Bot. Herald, 24. Durand, Pl. Kane, 187. Lange, Pl. Grönl. 130. Hook. f. in Jour. Linn. Soc. 1. 121; Arct. Pl. 285 & 317. Rothr. Alask. 443.

D. oblongata. R. Br. in Ross' Voy. 143. DC. Syst. 2. 342; Prodr. 1. 168. Spreng. Syst. 2. 874. Hook. Fl. Bor.-Am. 1. 52. Don, Mill. 1. 184. Torr. & Gray, Fl. 1. 105. Dietr. 3. 649.

D. arctica. Vahl.; Hornem. Fl. Dan. 13, t. **2294**. Lange, Pl. Groenl. 129.

D. gracilis. Ledeb. Fl. Ross. 1. 152. Walp. Rep. 1. 150. Rothr. Alask. 443.

D. incana, forma altera. Cham. & Schlecht. in Linn. 1. 24.

D. confusa, var. *paucifolia.* DC. Prodr. 1. 170.

D. hyperborea. Desv. Jour. Bot. 3. 172.

Alyssum hyperboreum. Linn. Spec. 651. Hill, Veg. Syst. 11, t. **53, f. 8.** Poir. Suppl. 1. 306. DC. Syst. 2. 323; Prodr. 1. 164. Pursh, 434. Hook. Fl. Bor.-Am. 1. 49. Torr. & Gray, Fl. 1. 103. Ledeb. Fl. Ross. 1. 139. Dietr. 3. 641. Rothr. Alask. 443.

D. grandis. Langsd.; DC. Syst. 2. 355. Deless. Icon. Sel. 2. 14, t. **47.** Rothr. Alask. 443.

Cochlearia septentrionalis. DC. Prodr. 1. 174.

C. spathulata. Schlecht.; DC. Syst. 2. 369; Prodr. 1. 174. Cham. & Schlecht. in Linn. 1. 27. Hook. Fl. Bor.-Am. 1. 57. Don, Mill. 1. 189. Torr. & Gray, Fl. 1. 110. Ledeb. Fl. Ross. 1. 158. Dietr. 3. 353. Regel, Fl. Ost-Sib. 1. 200.

Draba spathulata. Spreng. Syst. 2. 876.

Var. **siliquosa.** Gray in Herb.

Cochlearia siliquosa. Schlecht.; DC. Syst. 2. 369; Prodr. 1. 174. Cham. & Schlecht. in Linn. 1. 27. Hook. Fl. Bor.-Am. 1. 57. Don, Mill. 1. 189. Torr. & Gray, Fl. 1. 110.

D. incana. Linn. Spec. 643. See syn. in DC. Syst. 2. 348, under *D. contorta* & *confusa*; Lindb. in Linn. 13. 330; Turcz. Fl. Baic. 1. 139; Ledeb. Fl. Ross. 1. 152; Regel & Til. Fl. Ajan. 55; Hook. f. Arct. Pl. 285. — Pursh, 434. Hook. Trans. Linn. Soc. 14. 365; Fl. Bor.-Am. 1. 54. Spreng. Syst. 2. 876. Cham. & Schlecht. in Linn. 1. 23. Meyer, Pl. Lab. 84. Don, Mill. 1. 185. Torr. & Gray, Fl. 1. 107. Seem. Bot. Herald, 24 & 51. Lange, Pl. Grönl. 130. Hook. f. in Jour. Linn. Soc. 1. 121 & 124; Arct. Pl. 285 & 317. Pl. Bourgeau, 254. Rothr. Alask. 443. Gray, Manual, 71.

D. contorta. Ehrh. Beitr. 7. 155. DC. Prodr. 1. 170. Meyer, Pl. Lab. 84. Don, Mill. 1. 185.

D. glabella. Richards. Frankl. Journ. 16, not Pursh. Hook. Fl. Bor.-Am. 1. 54.

Var. **confusa.** Poir. Suppl. 2. 524. Torr. & Gray, Fl. 1. 107. Durand, Pl. Kane, 187.

D. confusa. Ehrh. Beitr. 7. 155. DC. Syst. 2. 348, excl. var. β.; Prodr. 1. 170. Hook. Fl. Bor.-Am. 1. 54. Don, Mill. 1. 185. Trautv. & Meyer, Fl. Ochot. 16, with syn.

Var. **borealis.** Torr. & Gray, Fl. 1. 107.

D. borealis. DC. Syst. 2. 342; Prodr. 1. 168. Spreng. Syst. 2. 874. Hook. Fl. Bor.-Am. 1. 55. Don, Mill. 1. 184. Ledeb. Fl. Ross. 1. 153. Dietr. 3. 649. Regel & Til. Fl. Ajan. 59. Rothr. Alask. 443.

D. Unalaschkiana. DC. Syst. 2. 350; Prodr. 1. 170. Spreng. Syst. 2. 876. Hook. Fl. Bor.-Am. 1. 55. Don, Mill. 1. 185. Torr. & Gray, Fl. 1. 107. Ledeb. Fl. Ross. 1. 153. Dietr. 3. 650. Rothr. Alask. 443.

D. montana. Watson, ined. (*D. nemorosa.* Rothr. Pl. Wheeler, 34.)

D. nemorosa. Linn. Spec. 643. See syn. in DC. Syst. 2. 351, under *D. nemoralis*; Lindb. l. c. 333; Ledeb. l. c. 154; Regel, Fl. Ost-Sib. 1. 198; Maxim. Bull. Acad. Petersb. 22. 228. — Gray, Manual, 72. Macoun & Gibson, Trans. Edinb. 12. 314.

Var. *a.* **leiocarpa.** Lindb. l. c. Ledeb. l. c. Regel, l. c.

D. lutea, Gilib. See syn in DC. Syst. 2. 351. — Richards. Frankl. Journ. 16. Hook. Fl. Bor.-Am. 1. 55. Torr. & Gray, Fl. 1. 107. Pl. Bourgeau, 254.

D. gracilis. Grah. Edinb. Phil. Journ. 1828, 172 (Litt.-Ber. zu Linn. 1830, 126).

D. nemorosa, var. *lutea.* Porter, Hayd. Rep. 1871, 478; Fl. Col. 8.

Var. *β.* **hebecarpa.** Lindb. l. c., and others. Torrey, Bot. Wilkes, 233.

D. nemoralis. Ehrh. Beitr. 7. 154. Nutt. Genera, 2. 62. Hook. Fl. Bor.-Am. 1. 55. Don, Mill. 1. 186. Torr. & Gray, Fl. 1. 108. Gray, Manual, 1 ed. 39; Proc. Acad. Philad. 1863, 58. Cooper, Pac. R. Rep. 12. 56.

? *D. muralis.* Hook. Fl. Bor.-Am. 1. 56. Torr. & Gray, Fl. 1. 108. Hook. f. Arct. Pl. 285.

D. nemorosa. Gray, Am. Jour. Sci. 2. 33. 242. Anderson, Cat. 118. Watson, King's Rep. 5. 22. Porter, Hayd. Rep. 1871, 478.

D. lutea, var. *longipes.* Hook. in Lond. Jour. Bot. 671, not DC.

Var. **alpina.** Porter, Fl. Col. 8.

D. platycarpa. Torr. & Gray, Fl. 1. 108. Walp. Rep. 1. 152. Dietr. 3. 651. Gray, Pl. Lindh. 148; Ives's Rep. 6. Scheele in Röm. Texas, 436.

? *D. Roemeriana.* Scheele in Linn. 21. 583.

D. ramosissima. Desv. Jour. Bot. 3. 186. DC. Syst. 2. 355; Prodr. 1. 171. Don, Mill. 1. 186. Gray, Ann. Lyc. N. Y. 3. 224; Manual, 71. Torr. & Gray, Fl. 1. 106. Dietr. 3. 651. Chapman, 29.

D. arabisans. Pursh, 434, not Michx.

Alyssum (?) *dentatum.* Nutt. Genera, 2. 63. Beck, Bot. 26. Nees, Pl. Wied, 4.

D. dentata. Hook. & Arn. in Jour. Bot. 1. 192. Hook. Icon. **t. 31.**

D. rupestris. R. Br. in Ait. f. Hort. Kew. 4. 91. See syn. in DC. Syst. 2. 344; Regel, Fl. Ost-Sib. 1. 194; Ruprecht, Fl. Cauc. 1. 119. — Cham. & Schlecht. in Linn. 1. 23. Ledeb. Icon. **t. 260**; Fl. Ross. 1. 149. Hook. Fl. Bor.-Am. 1. 93. Don, Mill. 1. 184. Torr. & Gray, Fl. 1. 105. Dietr. 3. 649. Vahl, Fl. Dan. 14, **t. 2421.** Seem. Bot. Herald, 54. Durand, Pl. Kane, 187. Lange, Pl. Grönl. 130. Hook. f in Jour. Linn. Soc. 1. 116 & 121, & 5. 82; Arct. Pl. 285 & 317. Dickie, Jour. Linn. Soc. 3. 110.

D. hirta, var. 4. Hook. in Parry's 2d Voy. 386.

D. stellata, Jacq. See syn. in DC. Syst. 2. 346; Ledeb. Fl. Ross. 1. 149, under *D. frigida;* Ball, Bull. Soc. Bot. France, 7. 229 & 249; Regel, Fl. Ost-Sib. 1. 192. — Cham. & Schlecht. in Linn. 1. 22. Hook. Fl. Bor.-Am. 1. 53. Torr. & Gray, Fl. 1. 105. Hook. & Arn. Bot. Beechey, 121. Seem. Bot. Herald, 54. Ascherson, in Flora, 43. 369. Hook. f. Arct. Pl. 285 & 317. Coulter, Hayd. Rep. 1872, 760.

Var. *a.* **nivalis.** Regel, l. c. 192.

D. frigida, Sauter. Ledeb. Fl. Ross. 1. 149 & 755.

D. muricella, Wahl. R. Br. in Ross' Voy. 193. Greville, Mem. Soc. Wern. 3. 431. DC. Syst. 2. 340; Prodr. 1. 168. Richards. Frankl. Journ. 16. Hook. in Parry's 2d Voy. 387; Trans. Linn. Soc. 14. 364; Fl. Bor.-Am. 1. 52. Graham, Edinb. Phil. Jour. 1829, 345. Meyer, Pl. Lab. 83. Don, Mill. 1. 184. Torr. & Gray, Fl. 1. 104. Seem. Bot. Herald, 24 & 55. Hook. f. Arct. Pl. 285 & 317. Rothr. Alask. 443.

D. nivalis, Lilj. Vahl, Fl. Dan. 14, **t. 2417.** Lange, Pl. Grönl. 130.

Var. *β.* **hebecarpa.** DC. Syst. 2. 346. Hook. Fl. Bor.-Am. 1. 53. Torr. & Gray, Fl. 1. 105. Gray, Proc. Acad. Philad. 1863, 57. Rothr. Alask. 443. Watson, King's Rep. 5. 21.

Var. γ. **Johannis.** Regel, l. c. 193.

? *D. hirta*, β. *alpicola.* Greville, Mem. Soc. Wern. 3. 431.

? *D. lævipes.* DC. Syst. 2. 346. Deless. Icon. 2, t. **46**, f. **A.** Hook. Fl. Bor.-Am. 1. 53. Torr. & Gray, Fl. 1. 105. Ball, l. c. 247.

D. muricella ? Watson, King's Rep. 5. 21.

D. nivalis. Porter, Hayd. Rep. 1870, 473.

D. streptocarpa. Gray, Am. Jour. Sci. 2. 33. 242 (Bull. Soc. Bot. France, 9. 679); Proc. Acad. Philad. 1863, 58. Walp. Ann. 7. 125. Porter, Fl. Col. 7.

D. ventosa. Gray, Am. Naturalist, 8. 212.

D. verna. Linn. Spec. 642. See syn. in DC. Syst. 2. 356, under *Erophila vulgaris;* Lindb. in Linn. 13. 334; Ledeb. Fl. Ross. 1. 155. — Pursh, 433. Barton, Fl. N. Am. 3. 49, t. **88.** Bigel. Fl. Bost. 250. Torr. & Gray, Fl. 1. 109. Torrey, Fl. N. Y. 1. 63. Gray, Genera, 1. 160, t. **69**; Struct. Bot. 390, f. **701, 702**; Manual, 72. Chapman, 29.

D. verna, var. *Americana.* Persoon, 2. 190.

Erophila Americana. DC. Syst. 2. 356; Prodr. 1. 172. Don, Mill. 1. 187.

E. vulgaris. DC. Syst. 2. 356; Prodr. 1. 172. Hook. Fl. Bor.-Am. 1. 172. Don, Mill. 1. 187. Beck, Bot. 26.

D. Caroliniana, var. Barton, Fl. Philad. 2. 58.

Erophila vulgaris, var. *Americana.* Darling. Fl. Cestr. 378.

D. algida; D. alpina.
Arabis; arabisans.
arabisans; ramosissima.
arctica; hirta.
bifolia; Caroliniana.
borealis; incana.
Canadensis; arabisans.
Caroliniana; verna.
confusa; hirta, incana.
contorta; incana.
corymbosa; alpina, androsacea.
crassifolia; androsacea.
densifolia; alpina.
dentata; ramosissima.
filicaulis; Caroliniana, cuneifolia.
Fladnitzensis, androsacea.
frigida; stellata.
glabella; arabisans, incana.
glacialis; alpina.
gracilis; hirta, nemorosa.
grandis; hyperborea.
Henneana; arabisans.
hirta; androsacea, rupestris, stellata.
hispidula; Caroliniana.
D. incana; arabisans, hirta.
incompta; alpina.
Johannis; androsacea, stellata.
lactea & Lapponica; androsacea.
lævigata; Eutrema Edwardsii.
lævipes; stellata.
lutea; nemorosa.
macrocarpa; alpina.
micrantha; Caroliniana.
micropetala; alpina.
muralis; nemorosa.
muricella; stellata.
nemoralis; nemorosa.
nivalis; androsacea, stellata.
oblongata; hirta.
ochroleuca; alpina.
oligosperma; androsacea.
pauciflora & pilosa; alpina.
Roemeriana; cuneifolia, platycarpa.
spathulata; hyperborea.
stenoloba; hirta.
umbellata; Caroliniana.
Unalaschkiana; incana.
Wahlenbergii; androsacea.

DRYOPETALON runcinatum. Gray, Pl. Wright. 2. 11, t. **11.** Walp. Ann. 4. 191. Torrey, Mex. Bound. 32.

ERYSIMUM asperum. DC. Syst. 2. 505; Prodr. 1. 199. Spreng. Syst. 2. 907. Torrey, Ann. Lyc. N. Y. 2. 166; Nicol. Rep. 145; Frem. Rep. 87; Stansb. Rep. 383; Pac. R. Rep. 4. 66 & 7. 7; Mex. Bound. 33; Bot. Wilkes, 230. Hook. Fl. Bor.-Am.

1. 64, t. **22**; Lond. Jour. Bot. 6. 69. Don, Mill. 1. 212. Torr. & Gray, Fl. 1. 95 & 667; Pac. R. Rep. 2. 119 & 159. Hook. & Arn. Bot. Beechey, 135 & 323. Dietr. 3. 716. Nees, Pl. Wied, 4. Engelm. Wisliz. Rep. 4. Gray, Pl. Fendl. 9; Pl. Wright. 1. 8 & 2. 13; Pac. R. Rep. 12. 41; Ives's Rep. 6. Durand, Pl. Pratten. 81; Fl. Utah, 159. Cooper, Pac. R. Rep. 12. 56. Pl. Bourgeau, 254. Anderson, Cat. 117. Boland. Cat. 5. Porter, Hayd. Rep. 1870, 473; 1871, 478. Watson, King's Rep. 5. 24. Coulter, Hayd. Rep. 1872, 761.

E. lanceolatum. Pursh, 436. Bradbury, Cat. 338.

Cheiranthus asper. Nutt. Genera, 2. 69. James, Cat. 185.

E. asperum, var. *Purshii.* Durand, Fl. Utah, 159.

Var. **Arkansanum.** Gray, Manual, 69. Porter, Fl. Col. 8.

E. Arkansanum. Nutt.; Torr. & Gray, Fl. 1. 95. Walp. Rep. 1. 170. Dietr. 3. 715. Gray, Genera, 1. 150, t. **63**; Pl. Lindh. 144; Manual, 1 ed. 37. Scheele, Linn. 21. 581; Röm. Texas, 436. Torrey, Emory's Rep. 137. Durand, Pl. Pratten. 81. Boland. Cat. 5.

Var. **elatum.** Torrey, Pac. R. Rep. 7. 7. Durand, Pl. Pratten. 81. Gray, Proc. Bost. Soc. Nat. Hist. 7. 146; Am. Jour. Sci. 2. 33. 242; Proc. Acad. Philad. 1863, 57; Proc. Am. Acad. 8. 377.

E. elatum. Nutt.; Torr. & Gray, Fl. 1. 95. Newberry, Pac. R. Rep. 6. 66.

E. cheiranthoides. Linn. Spec. 661. See syn. in DC. Syst. 2. 498; Ledeb. Fl. Ross. 1. 180. — Pursh, 436. Richards. Frankl. Journ. 16. DC. Prodr. 1. 198. Hook. Fl. 1. 64. Beck, Bot. 33. Torr. & Gray, Fl. 1. 94. Torrey, Fl. N. Y. 1. 60; Nicol. Rep. 145; Frem. Rep. 87; Bot. Wilkes, 230. Seem. Bot. Herald, 51. Parry, Pl. Minn. 609. Hook. f. in Journ. Linn. Soc. 1. 124; Arct. Pl. 286 & 319. Gray, Pac. R. Rep. 12. 41; Proc. Acad. Philad. 1863, 57; Manual, 69. Lesqx. Fl. Ark. 349. Regel, Fl. Ost-Sib. 1. 206. Pl. Bourgeau, 254. Porter, Hayd. Rep. 1871, 478; Fl. Col. 8. Watson, King's Rep. 5. 24. Coulter, Hayd. Rep. 1872, 761.

E. parviflorum. Persoon, 2. 199. Nutt. Genera, 2. 68.

Sisymbrium cheiranthoides. Eat. & Wr. 429.

E. parviflorum. Nutt.; Torr. & Gray, Fl. 1. 95. Walp. Rep. 1. 170. Eat. & Wr. 239. Dietr. 3. 715.

E. lanceolatum. Hook. Fl. Bor.-Am. 1. 64; not R. Br. Torr. & Gray, Fl. 1. 94. Eat. & Wr. 238. Seem. Bot. Herald, 51. Rothr. Alask. 443.

? *E. hieracifolium.* Hook. f. Arct. Pl. 286 & 319, as to American localities.

E. asperum, var. *inconspicuum.* Watson, King's Rep. 5. 24. Brew. & Wats. l. c. 39.

E. ORIENTALE, R. Br. A. H. Smith, Proc. Acad. Philad. 1867, 17.

E. pumilum. Nutt.; Torr. & Gray, Fl. 1. 95. Walp. l. c. Dietr. l. c. Gray, Am. Journ. Sci. 2. 33. 242; Proc. Acad. Philad. 1863, 57. Brew. & Wats. l. c.

E. asperum, var. *pumilum.* Porter, Fl. Col. 8.

? *Hesperis Pallasii.* Porter, Fl. Col. 9.

EUTREMA Edwardsii. R. Br. in Parry's 1st Voy. 267, t. **A** (Flora, 7², Beil. 73). Hook. in Parry's 2d Voy. 388; Fl. Bor.-Am. 1. 67. Spreng. Syst. 2. 880. Don, Mill. 1. 215. Meyer, Ledeb. Fl. Alt. 3. 163. Ledeb. Icon. t. **258**; Fl. Ross. 1. 197. Hornem. Fl. Dan. 13, t. **2242**. Torr. & Gray, Fl. 1. 112. Dietr. 3. 673. Lange, Pl. Groenl. 130. Hook. f. in Journ. Linn. Soc. 1. 121 & 5. 82; Arct. Pl. 286. Rothr. Alask. 443. Referred in Walp. Rep. 1. 171 to *Smelowskia cinerea* (Meyer in Ledeb. Fl. Alt. 3. 171), with syn.

Draba (?) *lævigata.* Cham. & Schlecht. in Linn. 1. 25. Hook. Fl. Bor.-Am. 1. 54. Don, Mill. 1. 186. Torr. & Gray, Fl. 1. 106.

Sisymbrium Edwardsii. Trautv. in Trud. Petr. 1. 59 (Trim. Jour. Bot. 2. 1. 215), with syn.; suppressing the genus.

E. Labradoricum. Turcz. in Bull. Soc. Mosc. 27^2. 305.

GREGGIA camporum. Gray, Pl. Wright. 1. 8, **t. 1**, & 2. 13; Pl. Fendl. 116. Torr. & Gray, Pac. R. Rep. 2. 159. Walp. Ann. 4. 208. Torrey, Mex. Bound. 33.

HESPERIS MATRONALIS, Linn. Hook. Fl. Bor.-Am. 1. 59. Torr. & Gray, Fl. 1. 90. Wood, Bot. & Fl. 39.

LEAVENWORTHIA Michauxii. Torrey, Ann. Lyc. N. Y. 4. 89. Torr. & Gray, Fl. 1. 90. Dietr. 3. 701. Chapman, 27. Gray, Manual, 65.

Cardamine uniflora. Michx. Fl. 2. 29. Persoon, 2. 195. Poir. Suppl. 2. 394. Pursh, 439. DC. Syst. 2. 251; Prodr. 1. 150. Spreng. Syst. 2. 885. Leavenworth, Am. Jour. Sci. 1. 7. 63. Don, Mill. 1. 167.

L. aurea. Torrey, l. c. 88. Torr. & Gray, Fl. 1. 89. Dietr. 3. 701. Gray, Genera, 1. 140, **t. 57**; Manual, 2 ed. 31. Chapman, 27. Hook. Bot. Mag. **t. 5730.**

LEPIDIUM alyssoides. Gray, Pl. Fendl. 10; Pl. Wright. 1. 10 & 2. 15; Ives's Rep. 7. Walp. Ann. 2. 51. Torr. & Gray, Pac. R. Rep. 2. 160. Torrey, same, 4. 67; Mex. Bound. 34. Watson, King's Rep. 5. 29. Porter, Fl. Col. 10.

L. CAMPESTRE, R. Br. Beck, Bot. 27. Torr. & Gray, Fl. 1. 115. Gray, Manual, 74.

L. dictyotum. Gray, Proc. Am. Acad. 7. 329. Anderson, Cat. 117. Watson, King's Rep. 5. 30, **t. 4, f. 1, 2.**

L. DRABA, Linn. Gray, Manual, 74.

L. flavum. Torrey, Pac. R. Rep. 4. 67. Watson, King's Rep. 5. 30.

L. Fremonti. Watson, King's Rep. 5. 30, **t. 4, f. 3, 4.**

L. integrifolium. Nutt.; Torr. & Gray, Fl. 1. 116. Walp. Rep. 1. 176. Dietr. 3. 666. Hook. in Lond. Jour. Bot. 6. 71.

L. intermedium. Gray, Pl. Wright. 2. 15; Pac. R. Rep. 12. 41.; Manual, 74. Torr. & Gray, Pac. R. Rep. 2. 160. Walp. Ann. 4. 214. Torrey, Mex. Bound. 34. Durand, Fl. Utah, 159. Anderson, Cat. 117. Leggett, Torr. Bull. 1. 22. Watson, King's Rep. 5. 29. Porter, Hayd. Rep. 1871, 478; Fl. Col. 10.

L. ruderale, not Linn. Richards. Frankl. Journ. 16. Hook. Fl. Bor.-Am. 1. 68; Jour. Bot. 1. 192. Torr. & Gray, Fl. 1. 115. Torrey, Nicol. Rep. 145; Frem. Rep. 87; Emory's Rep. 137; Bot. Wilkes, 233. Gray, Pl. Fendl. 10. Seem. Bot. Herald, 51. Hook. f. Arct. Pl. 286 & 320. Porter, Hayd. Rep. 1870, 473.

L. ruderale, var. *lasiocarpum.* Engelm.; Gray, Pl. Wright. 2. 15.

L. Texanum. Buckl. Proc. Acad. Philad. 1861, 449, fide Gray, same, 1862, 161.

L. lasiocarpum. Nutt.; Torr. & Gray, Fl. 1. 115. Walp. Rep. 1. 176. Dietr. 3. 666. Eat. & Wr. 296. Watson, Proc. Am. Acad. 11. 113. Brew. & Wats. l. c. 46.

L. latipes. Hook. Icon. **t. 41.** Torr. & Gray, Fl. 1. 116. Hook. & Arn. Bot. Beechey, 323. Walp. Rep. 1. 177. Eat. & Wr. 296. Dietr. 3. 667. Torrey, Mex. Bound. 34. Boland. Cat. 5. Brew. & Wats. Bot. Calif. 1. 45.

L. Menziesii. DC. Syst. 2. 539; Prodr. 1. 205. Spreng. Syst. 2. 868. Hook. Fl. Bor.-Am. 1. 68, excl. var. Don, Mill. 1. 219. Torr. & Gray, Fl. 1. 115, in part. Dietr. 3. 667. Boland. Cat. 5. Watson, l. c. 113. Brew. & Wats. l. c. 46.

L. Californicum. Nutt.; Torr. & Gray, Fl. 1. 115. Walp. Rep. 1. 176. Eat. & Wr. 296. Dietr. 3. 666. Torrey, Mex. Bound. 34. Boland. Cat. 5.

L. montanum. Nutt.; Torr. & Gray, Fl. 1. 116 & 669. Walp. Rep. 1. 176. Dietr. 3. 666. Gray, Pl. Wright. 2. 15. Torrey, Pac. R. Rep. 7. 8. Anderson, Cat. 117. Watson, King's Rep. 5. 29. Coulter, Hayd. Rep. 1872, 761. Porter, Fl. Col. 10.

L. corymbosum. Hook. & Arn. Bot. Beechey, 323. Walp. Rep. 1. 177. Dietr. 3. 666. Durand, Fl. Utah, 159.

L. Utahviense. Regel, Act. Hort. Petrop. 1. 92.

L. nanum. Watson, King's Rep. 5. 30, **t. 4, f. 5–7.**

L. nitidum. Nutt.; Torr. & Gray, Fl. 1. 116. Walp. Rep. 1. 178. Dietr. 3. 670. Benth. Pl. Hartw. 297. Torrey, Pac. R. Rep. 4. 66 & 7. 8; Mex. Bound. 34. Newberry, Pac. R. Rep. 6. 66. Boland. Cat. 5. Brew. & Wats. Bot. Calif. 1. 46.

L. leiocarpum. Hook. & Arn. Bot. Beechey, 324; not DC.

L. oxycarpum. Torr. & Gray, Fl. 1. 116. Hook. & Arn. Bot. Beechey, 323. Walp. Rep. 1. 178. Dietr. 3. 670. Boland. Cat. 5. Brew. & Wats. l. c.

Var. (?) **strictum.** Watson, Bot. Calif. 1. 46.

L. RUDERALE, Linn. Gray, Genera, 1. 168, **t. 73, f. 8–10;** Manual, 74.

L. SATIVUM, Linn. Porter, Hayd. Rep. 1870, 473; Fl. Col. 10. Coulter, Hayd. Rep. 1872, 761.

L. sordidum. Gray, Pl. Wright. 1. 10 & 2. 15. Walp. Ann. 4. 213.

L. Virginicum. Linn. Spec. 645. Hill, Veg. Syst. 11, **t. 44, f. 3.** Walt. Fl. Car. 173? Ait. Hort. Kew. 2. 375. Willd. Spec. 3. 440. Michx. Fl. 2. 271. Persoon, 2. 188. Pursh, 435. Nutt. Genera, 2. 64. James, Cat. 185; Long's Exp. 2. 173. DC. Syst. 2. 538; Prodr. 1. 205. Elliott, 2. 140. Hook. Fl. Bor.-Am. 1. 69; Jour. Bot. 1. 192; Lond. Jour. Bot. 6. 71. Don, Mill. 1. 219. Darling. Fl. Cestr. 380. Torr. & Gray, Fl. 1. 115. Torrey, Fl. N. Y. 1. 64. Gray, Genera, 1. 168, **t. 73;** Pac. R. Rep. 12. 41; Manual, 74. Scheele, Röm. Texas, 437. Seem. Bot. Herald, 268. Parry, Pl. Minn. 609. Griseb. Fl. W. Ind. 14. Chapman, 30. Pl. Bourgeau, 263. Leggett, Torr. Bull. 1. 5.

Clypeola Caroliniana. Walt. Fl. Car. 173.

L. Iberis. Schkuhr, Handb. 2. 222, **t. 180.**

Thlaspi Virginianum. Poir. Dict. 7. 544. Hornem. Hort. Hafn. 605.

L. triandrum. Stokes, Bot. Med. 3. 426.

Dilepium diffusum & præcox. Raf. Fl. Lud. 85; Med. Bot. 2. 237.

Cynocardamum Virginicum. Webb & Berth. Hist. Nat. Canar. 1. 97. Spach, Hist. Veg. 6. 554.

L. Wrightii. Gray, Pl. Wright. 2. 15; Ives's Rep. 7. Torr. & Gray, Pac. R. Rep. 2. 160. Torrey, same, 4. 67; Mex. Bound. 34. Walp. Ann. 4. 214.

LYROCARPA Coulteri. Hook. & Harv. in Lond. Jour. Bot. 4. 76, **t. 4.** Walp. Rep. 5. 37. Gray, Proc. Am. Acad. 5. 153. Baill. Hist. Pl. 3. 282.

NASTURTIUM amphibium. R. Br. in Ait. f. Hort. Kew. 4. 110. See syn. in DC. Syst. 2. 196. — Hook. Fl. Bor.-Am. 1. 39. Beck, Bot. 32. Torr. & Gray, Fl. 1. 73. Hook. f. Arct. Pl. 284.

Sisymbrium amphibium. Linn. Spec. 657. Pursh, 440. Nutt. Genera, 2. 67. Elliott, 2. 146. Bigel. Fl. Bost. 253.

S. Indicum. Walt. Fl. Car. 174.

N. ARMORACIA, Fries. Gray, Manual, 65.

Cochlearia Armoracia, Linn. Gray, Manual, 3 ed. 39.

Armoracia rusticana, Rupp. Wood, Bot. & Fl. 41.

N. curvisiliqua. Nutt.; Torr. & Gray, Fl. 1. 73. Walp. Rep. 1. 127. Dietr. 3. 685. Hook. in Lond. Jour. Bot. 6. 69. Torrey, Pac. R. Rep. 4. 65 & 7. 7; Mex. Bound. 33; Bot. Wilkes, 226. Cooper, Pac. R. Rep. 12. 56. Boland. Cat. 4. Coulter, Hayd. Rep. 1872, 760. Gray, Proc. Am. Acad. 8. 376.

Sisymbrium curvisiliqua. Hook. Fl. 1. 61. Hook. & Arn. Bot. Beechey, 323.

N. cernuum & polymorphum. Nutt.; Torr. & Gray, Fl. 1. 74. Walp. Rep. 1. 127.

Var. **lyratum.** Watson, Bot. Calif. 1. 43.

N. lyratum. Nutt.; Torr. & Gray, Fl. 1. 73 & 666. Walp. Rep. 1. 127. Dietr. 3. 685. Newberry, Pac. R. Rep. 6. 66. Gray, Proc. Am. Acad. 8. 376. Torrey, Bot. Wilkes, 226.

N. obtusum. Torrey, Pac. R. Rep. 4. 65.

N. lacustre. Gray, Genera, 1. 132; Manual, 65. Chapman, 25.

? *Cochlearia aquatica.* Eaton, Manual, 5 ed. 181.

N. natans. Hook. Fl. Bor.-Am. 1. 39, not DC.; Journ. Bot. 1. 190. Beck, Bot. 32. Gray, Manual, 1 ed. 32.

N. natans, var. *Americanum.* Gray, Ann. Lyc. N. Y. 3. 223. Torr. & Gray, Fl. 1. 75. Walp. Rep. 1. 127. Torrey, Fl. N. Y. 1. 52. Parry, Pl. Minn. 609.

Armoracia Americana. Hook. & Arn. Brit. Fl. 7. ed. 29. Wood, Bot. & Fl. 42.

N. limosum. Nutt.; Torr. & Gray, Fl. 1. 74. Walp. Rep. 1. 127. Dietr. 3. 685. Gray, Pac. R. Rep. 12. 41. Wood, Cl.-Book, 228; Bot. & Fl. 31.

N. obtusum. Nutt.; Torr. & Gray, Fl. 1. 74. Walp. Rep. 1. 127. Dietr. 3. 685. Eat. & Wr. 326. Gray, Pl. Fendl. 6; Pl. Wright. 2. 10; Pl. Thurb. 299; Pac. R. Rep. 12. 41; Proc. Acad. Philad. 1863, 57. Torrey, Pac. R. Rep. 5. 359; Mex. Bound. 33. Porter, Hayd. Rep. 1870, 473; 1871, 478; Fl. Col. 6. Watson, King's Rep. 5. 15. Coulter, Hayd. Rep. 1872, 760.

Var. (?) **alpinum.** Watson, King's Rep. 5. 15.

N. OFFICINALE, R. Br. Cham. & Schlecht. in Linn. 1. 15. Hook. Fl. Bor.-Am. 1. 39. Beck, Bot. 31. Torr. & Gray, Fl. 1. 72. Chapman, 25. Gray, Manual, 64; Hall's Pl. Tex. 3. Anderson, Cat. 117. Boland. Cat. 4. Watson, King's Rep. 5. 15. Coulter, Hayd. Rep. 1872, 760. Porter, Fl. Col. 6.

Sisymbrium Nasturtium, Linn. Walt. Fl. Car. 174. Pursh, 440. Nutt. Genera, 2. 67. Elliott, 2. 145.

N. palustre, DC. See syn. in DC. Syst. 2. 191; Ledeb. Fl. Ross. 1. 112; Regel, Fl. Ost-Sib. 1. 151. — Richards. Frankl. Journ. 15. Cham. & Schlecht. in Linn. 1. 15. Raf. Med. Bot. 2. 39, **f. 65.** Hook. Fl. Bor.-Am. 1. 39; Jour. Bot. 1. 190; Lond. Jour. Bot. 6. 69. Beck, Bot. 32. Torr. & Gray, Fl. 1. 73. Hook. & Arn. Bot. Beechey, 135. Torrey, Fl. N. Y. 1. 51; Nicol. Rep. 145; Frem. Rep. 87; Pac. R. Rep. 4. 64; Mex. Bound. 33; Bot. Wilkes, 226. Gray, Pl. Fendl. 6; Pl. Wright. 2. 10; Genera, 1. 132, **t. 53, f. 1–5**; Pac. R. Rep. 12. 41; Manual, 64; Proc. Am. Acad. 8. 376. Seem. Bot. Herald, 51. Parry, Pl. Minn. 609. Lange, Pl. Grönl. 130. Cooper, Pac. R. Rep. 12. 56. Chapman, 25. Hook. f. Arct. Pl. 284. Rothr. Alask. 442. Watson, King's Rep. 5. 15. Porter, Fl. Col. 6.

Sisymbrium palustre, Linn. Pursh, 440. Elliott, 2. 145.

Camelina barbareæfolia. DC. Syst. 2 517; Prodr. 1. 201. Deless. Icon. Sel. 2, **t. 70.** Cham. & Schlecht. in Linn. 1. 29. Hook. Fl. Bor.-Am. 1. 65. Torr. & Gray, Fl. 1. 111.

Tetrapoma barbareæfolium, Turcz., & *T. Krusianum.* Fisch. & Mey. in Ind. Sem. Petr. 1. 39 (Linn. Litt.-Ber. 1836, 104). Baill. Hist. Pl. 3. 186 & 232, **f. 210–213.**

Roripa nasturtioides. Spach, Hist. Veg. 6. 506.

Tetrapoma pyriforme. Seem. Bot. Herald, 24, **t. 2.** Rothr. Alask. 443.

N. lyratum. Cooper, Pac. R. Rep. 12. 51.

Var. **hispidum.** Fisch. & Mey. Ind. Sem. Petr. 3. 41 (Linn. Litt.-Ber. 1838, 101). Gray, Pl. Fendl. 6; Manual, 64. Watson, King's Rep. 5. 15. Porter, Hayd. Rep. 1871, 478. Coulter, same, 1872, 760.

Brachylobus hispidus. Desv. Jour. 3. 183.

Sisymbrium hispidum. Poir. Suppl. 5. 161.

Nasturtium hispidum. DC. Syst. 2. 201; Prodr. 1. 139. Don, Mill. 1. 158. Torr. & Gray, Fl. 1. 74. Torrey, Fl. N. Y. 1. 51. Gray, Manual, 1 ed. 32.

N. sessiliflorum. Nutt.; Torr. & Gray, Fl. 1. 73 & 666. Walp. Rep. 1. 127. Dietr. 3. 685. Gray, Genera, 1. 132, t. **53**, f. **6–8**; Pac. R. Rep. 12. 40; Manual, 64; Hall's Pl. Tex. 3. Torrey, Mex. Bound. 33. Chapman, 24.

N. sinuatum. Nutt.; Torr. & Gray, Fl. 1. 73 & 666. Walp. Rep. 1. 27. Dietr. 3. 685. Torrey, Nicol. Rep. 145. Gray, Pl. Fendl. 6; Ives's Rep. 6; Manual, 64. Parry, Pl. Minn. 609. Porter, Hayd. Rep. 1870, 473; Fl. Col. 6. Watson, King's Rep. 5. 15.

N. sphærocarpum. Gray, Pl. Fendl. 6. Walp. Ann. 2. 33.

N. SILVESTRE, R. Br. Torr. & Gray, Fl. 1. 74. Nees, Pl. Wied, 4. Gray, Manual, 64.

Sisymbrium vulgare. Nutt. Genera, 2. 68.

N. tanacetifolium. Hook. & Arn. in Hook. Jour. Bot. 1. 190. Torr. & Gray, Fl. 1. 72. Walp. Rep. 1. 126. Engelm. & Gray, Pl. Lindh. 33. Gray, Hall's Pl. Tex. 3. Chapman, 24. Wood, Cl.-Book, 228; Bot. & Fl. 36.

Sisymbrium tanacetifolium. Walt. Fl. Car. 174.

Cardamine teres. Michx. Fl. 2. 29. Persoon, 2. 195. Poir. Suppl. 2. 394. DC. Syst. 2. 259; Prodr. 1. 151. Don, Mill. 1. 169. Beck, Bot. 31. Gray, Manual, 1 ed. 34.

Sisymbrium (?) *teres.* Torr. & Gray, Fl. 1. 93. Fournier, Sisymb. 100. Gray, Am. Jour. Sci. 2. 42. 278.

N. palustre, var. *tanacetifolium.* DC. Syst. 2. 192; Prodr. 1. 137. Don, Mill. 1. 156.

Sisymbrium Walteri. Elliott, 2. 146.

N. micropetalum. Fisch. & Mey. Ind. Sem. Petr. 3. 41 (Linn, Litt.-Ber. 1838, 100). Dietr. 3. 686.

N. Walteri. Wood, Cl.-Book, 228; Bot. & Fl. 36.

PARRYA arctica. R. Br. in Parry's 1st Voy. 269, t. **B** (Flora, 7^2, Beil. 75). Hook. in Parry's 2d Voy. 388; Fl. Bor.-Am. 1. 47. Don, Mill. 1. 173. Torr. & Gray, Fl. 1. 88. Walp. Rep. 1. 134. Dietr. 3. 701. Seem. Bot. Herald, 54. Hook. f. in Jour. Linn. Soc. 1. 121; Arct. Pl. 285.

Neuroloma arcticum. Spreng. Syst. 2. 888.

P. nudicaulis, var. *a. arctica.* Regel in Reg. & Herd. Pl. Seminov. Suppl. 2. 20.

P. arenicola. Hook. f. Arct. Pl. 285 & 315.

Eutrema arenicola. Richards.; Hook. Fl. Bor.-Am. 1. 67, t. **24.** Torr. & Gray, Fl. 1. 112.

P. nudicaulis. Regel, Fl. Ost-Sib. 1. 176, and Regel & Herd. l. c. 2. 20, with syn.

Matthiola nudicaulis. Trautv. in Trud. Petr. 1. 51 (Trim. Jour. Bot. 1. 214).

Vars. glabra & aspera. Regel in Pl. Seminov. l. c. 22 & 24.

Cardamine articulata. Pursh, 439. DC. Syst. 2. 268; Prodr. 1. 154. Don, Mill. 1. 171. Dietr. 3. 699.

P. macrocarpa. R. Br. in Parry's 1st Voy. 270. Cham. & Schlecht. in Linn. 1. 18. Hook. Fl. Bor.-Am. 1. 47, t. **15.** Don, Mill. 1. 173. Torr. & Gray, Fl. 1. 88. Hook. & Arn. Bot. Beechey, 121. Ledeb. Fl. Ross. 1. 131, with syn. Turcz. Fl. Baic. 1. 124. Walp. Rep. 1. 134. Dietr. 3. 701. Trautv. in Pl. Middend. 1. 55. Seem. Bot. Herald, 24 & 51. Regel, Gart. Fl. 11. 235, t. **368.** Hook. f. Arct. Pl. 285. Rothr. Alask. 443. Watson, King's Rep. 5. 14.

PHYSARIA didymocarpa. Gray, Genera, 1. 162; Am. Jour. Sci. 2. 33. 243; Proc. Acad. Philad. 1863, 58. Torrey, Stansb. Rep. 384; Bot. Wilkes, 232. Porter, Hayd. Rep. 1870, 473; Fl. Col. 7. Watson, King's Rep. 5. 20.

Vesicaria didymocarpa. Hook. Fl. Bor.-Am. 1. 48, t. **16.** Don, Mill. 1. 177. Torr. & Gray, Fl. 1. 102. Walp. Rep. 1. 141. Dietr. 3. 638. Torrey, Frem. Rep. 87. Pl. Bourgeau, 254.

P. Geyeri. Gray, Genera, 1. 162. Torrey, Bot. Wilkes, 232.

Vesicaria Geyeri. Hook. in Lond. Jour. Bot. 6. 70, t. **5.** Walp. Ann. 1. 32.

P. Newberryi. Gray, Ives's Rep. 6; Am. Jour. Sci. 2. 33. 243.

PLATYSPERMUM scapigerum. Hook. Fl. Bor.-Am. 1. 68, t. **18, f. B;** Lond. Jour. Bot. 6. 71. Don, Mill. 1. 193. Torr. & Gray, Fl. 1. 112 & 668. Dietr. 3. 659. Baill. Hist. Pl. 3. 270. Watson, King's Rep. 5. 20. Torr. Bot. Wilkes, 234.

RAPHANUS RAPHANISTRUM, Linn. Beck, Bot. 34. Torr. & Gray, Fl. 1. 120. Torrey, Fl. N. Y. 1. 66; Mex. Bound. 35. Hook. f. Arct. Pl. 286. Gray, Manual, 75. Boland. Cat. 5.

R. SATIVUS, Linn. Gray, Manual, 75. Coulter, Hayd. Rep. 1872, 761.

SELENIA aurea. Nutt. in Jour. Acad. Philad. 5. 132, t. **6** (Linn. Litt.-Ber. 1830, 62). Don, Mill. 1. 269. Torr. & Gray, Fl. 1. 99. Dietr. 3. 654. Gray, Genera, 1. 158, t. **67.**

S. dissecta. Torr. & Gray, Pac. R. Rep. 2. 160, t. **1** (Flora, 1858, 624). Walp. Ann. 7. 109.

SENEBIERA CORONOPUS, Poir. Torr. & Gray, Fl. 1. 115. A. H. Smith, Proc. Acad. Philad. 1867, 18. Gray, Manual, 75.

Coronopus Ruellii, All. Pursh, 435. Elliott, 2. 139.

S. DIDYMA, Pers. Chapman, 30. Smith, l. c. 17. Gray, Manual, 74. Boland. Cat. 5.

Biscutella apetala. Walt. Fl. Car. 174.

Cochlearia humifusa. Michx. Fl. 2. 27.

Senebiera incisa. Willd. Enum. 668.

Coronopus didymus. Pursh, 435. Nutt. Genera, 2. 65. James, Long's Exped. 2. 339. Elliott, 2. 139.

Coronopus incisus. Hornem. Hort. Hafn. 599.

Senebiera pinnatifida. DC. Syst. 2. 523; Prodr. 1. 203. Hook. Jour. Bot. 1. 192; Fl. Antarct. 1. 241. Torr. & Gray, Fl. 1. 114. Gray, Genera, 1. 166, t. **72.**

SISYMBRIUM ACUTANGULUM, DC. Brew. & Wats. Fl. Calif. 1. 41.

S. auriculatum. Gray, Pl. Wright. 1. 8 & 2. 12. Walp. Ann. 4. 210. Fournier, Sisymb. 102.

S. canescens. Nutt. Genera, 2. 68. DC. Syst. 2. 475; Prodr. 1. 194. Richards. Frankl. Journ. 16. Elliott, 2. 147. Spreng. Syst. 2. 904. Graham, Edinb. Phil. Jour. 1828, 380 (Linn. Litt.-Ber. 1830, 128). Torrey, Ann. Lyc. N. Y. 2. 166; Nicol. Rep. 145; Stansb. Rep. 384; Pac. R. Rep. 7. 7; Mex. Bound. 33. Hook. Fl. Bor.-Am. 1. 62; Lond. Jour. Bot. 6. 69. Don, Mill. 1. 207. Darling. Fl. Cestr. 386. Torr. & Gray, Fl. 1. 92; Pac. R. Rep. 2. 159. Hook. & Arn. Bot. Beechey, 122. Walp. Rep. 1. 166. Dietr. 3. 708. Engelm. & Gray, Pl. Lindh. 38. Gray, Genera, 1. 152, t. **64;** Pl. Fendl. 8; Pl. Wright. 2. 12; Pac. R. Rep. 12. 41; Ives's Rep. 6; Am. Jour. Sci. 2. 33. 243 & 2. 42. 279; Manual, 70. Seem. Bot. Herald, 51. Parry, Pl. Minn. 609. Durand, Fl. Utah, 159. Cooper, Pac. R. Rep. 12. 56. Chapman, 28. Pl. Bourgeau, 254. Hook. f. Arct. Pl. 286 & 319. Fournier, Sisymb. 65. Rothr. Alask. 443. Boland. Cat. 5. Watson, King's Rep. 5. 23. Porter, Hayd. Rep. 1871, 478; Fl. Col. 8. Coulter, Hayd. Rep. 1872, 760.

Erysimum pinnatum. Walt. Fl. Car. 174.

Cardamine (?) *multifida.* Pursh, 440. Nutt. Genera, 1. 67. Don, Mill. 1. 170. Dietr. 3. 699.

S. Sophia. Pursh, 440, not Linn. Gray, Proc. Acad. Philad. 1863, 57, in part.

Cardamine (?) *Menziesii.* DC. Syst. 2. 267; Prodr. 1. 153. Don, Mill. 1. 170. Dietr. 3. 699.

Nasturtium multifidum & *Menziesii.* Spreng. Syst. 2. 883.

S. incanum. Bernh.; Fisch. & Mey. in Ind. Sem. Petr. 1. 38 (Ann. Sci. Nat. 2. 4. 337; Linn. Litt.-Ber. 1835, 103).

S. Sophia, var. *canescens.* Hook. Fl. Antarct. 1. 242.

Var. β (**brachycarpum**). Torr. & Gray, Fl. 1. 92. Anderson, Cat. 117.

S. brachycarpon. Richards. Frankl. Journ. 16. DC. Prodr. 1. 194. Graham, Edinb. Phil. Jour. 1828, 379. Hook. Fl. Bor.-Am. 1. 62. Don, Mill. 1. 207. Nees, Pl. Neuwied, 4. Fournier, Sisymb. 65, in part.

S. diffusum. Gray, Pl. Wright. 1. 8 & 2. 12. Walp. Ann. 4. 210. Torrey, Mex. Bound. 33. Fournier, Sisymb. 136.

S. glaucum. Nutt.; Torr. & Gray, Fl. 1. 93. Walp. Rep. 1. 166. Eat. & Wr. 430. Dietr. 3. 710. Fournier, Sisymb. 125. Porter, Fl. Col. 8.

S. humile. C. A. Meyer in Ledeb. Fl. Alt. 3. 137. See syn. in Ledeb. Fl. Ross. 1. 184; Fournier, Sisymb. 136. — Ledeb. Icon. t. **147.** Hook. l. c. Torr. & Gray, Fl. 1. 92. Walp. Rep. 1. 164. Seem. Bot. Herald, 51. Hook. f. Arct. Pl. 286.

S. incisum. Engelm.; Gray, Pl. Fendl. 8; Am. Journ. Sci. 2. 42. 279; Manual, 70. Walp. Ann. 2. 48. Torrey, Pac. R. Rep. 4. 66. Fournier, Sisymb. 64. Anderson, Cat. 117. Brew. & Wats. Bot. Calif. 1. 41.

Smelowskia (?) *Californica.* Gray, Proc. Am. Acad. 6. 520. Anderson, Cat. 117.

Sisymbrium Californicum. Watson, King's Rep. 5. 23; fide Gray, Am. Journ. Sci. 3. 3. 150.

Var. **Hartwegianum.** Watson, Bot. Calif. 1. 41.

S. canescens. Benth. Pl. Hartw. 9. Pl. Bourgeau, 254, in part.

? *S. canescens*, var. *brevipes.* Torr. & Gray, Fl. 1. 92.

S. Sophia. Gray, Proc. Acad. Philad. 1863, 57, in part. Torr. Bot. Wilkes, 230.

S. Hartwegianum. Fournier, Sisymb. 66. Gray, Am. Journ. Sci. 2. 42. 279.

? *S. brachycarpum.* Hook. & Arn. Bot. Beechey, 323. Fournier, l. c. 65, in part.

Var. **filipes.** Gray, Fl. Fendl. 8. Brew. & Wats. l. c.

S. longepedicellatum. Fournier, Sisymb. 59, excl. syn.

S. linifolium. Nutt.; Torr. & Gray, Fl. 1. 91 & 667. Walp. Rep. 1. 165. Eat. & Wr. 430. Dietr. 3. 707. Fournier, Sisymb. 106.

S. junceum. Hook. Fl. Bor.-Am. 1. 61; not Bieb. Torr. & Gray, Fl. 1. 91. Eat. & Wr. 429. Watson, King's Rep. 5. 23. Porter, Hayd. Rep. 1871, 478. Coulter, same, 1872, 760. Brew. & Wats. l. c.

Nasturtium linifolium & *pumilum.* Nutt. in Journ. Acad. Philad. 7. 12.

? *S. pygmæum.* Nutt.; Torr. & Gray, Fl. 1. 91 & 667. Walp. Rep. 1. 165. Eat. & Wr. 430. Dietr. 3. 707. Fournier, Sisymb. 100. Boland. Cat. 5?

Erysimum (?) *glaberrimum.* Hook. & Arn. Bot. Beechey, 323.

S. OFFICINALE, Scop. Hook. Fl. Bor.-Am. 1. 61. Beck, Bot. 33. Darling. Fl. Cestr. 386. Torr. & Gray, Fl. 1. 91. Torrey, Fl. N. Y. 1. 59; Pac. R. Rep. 4. 66. Chapman, 28. Gray, Manual, 70. Boland. Cat. 5. Brew. & Wats. l. c. 41.

Erysimum officinale, Linn. Michx. Fl. 2. 31. Pursh, 436. Elliott, 2. 148.

? *S. Niagarense.* Fournier, Sisymb. 85; fide Gray, Am. Journ. Sci. 2. 42. 278.

S. pauciflorum. Nutt.; Torr. & Gray, Fl. 1. 93. Walp. Rep. 1. 166. Dietr. 8. 710. Fournier, Sisymb. 127.

S. reflexum. Nutt. Pl. Gambel, in Proc. Acad. Philad. 4. 26 & Jour. 2. 1. 183.

Turritis (?) *lasiophylla.* Hook. & Arn. Bot. Beechey, 321. Torr. & Gray, Fl. 1. 166. Walp. Rep. 1. 130. Dietr. 8. 689.

S. deflexum. Harv.; Torrey, Pac. R. Rep. 4. 66, 5. 359 & 7. 7. Gray, Ives's Rep. 6; Proc. Am. Acad. 8. 377. Fournier, Sisymb. 108. Boland. Cat. 5.

S. salsugineum, Pall. See syn. in Ledeb. Fl. Ross. 1. 185; Fournier, Sisymb. 125. — Hook. f. & Thomp. in Jour. Linn. Soc. 5. 159. Hook. f. Arct. Pl. 286 & 319.

Turritis diffusa. Hook. Fl. Bor.-Am. 1. 41. Don, Mill. 1. 161. Torr. & Gray, Fl. 1. 79. Walp. Rep. 1. 130. Dietr. 8. 689.

S. Sophia, Linn. Beck, Bot. 33. Torr. & Gray, Fl. 1. 92. Hook. f. Arct. Pl. 286 & 319. Fournier, Bull. Soc. Bot. France, 11. 358. Gray, Am. Jour. Sci. 2. 42. 279; Manual, 70.

Var. Richards. Frankl. Journ. 16.

S. Sophia. Cham. & Schlecht. in Linn. 1. 28.

S. sophioides. Fisch.; Hook. Fl. Bor.-Am. 1. 61, t. 20. Torr. & Gray, Fl. 1. 92. Hook. & Arn. Bot. Beechey, 122. Ledeb. Fl. Ross. 1. 181. Walp. Rep. 1. 165. Dietr. 8. 708. Seem. Bot. Herald, 24 & 51. Fournier, Sisymb. 58.

S. Thaliana, Gay. Hook. Fl. Bor.-Am. 1. 63. Darling. Fl. Cestr. 888. Torr. & Gray, Fl. 1. 93. Torrey, Fl. N. Y. 1. 60. Chapman, 28. Fournier, Sisymb. 126. Gray, Manual, 67 & 70.

Arabis Thaliana, Linn. Pursh, 437. Beck, Bot. 29. Hook. f. Arct. Pl. 284.

A. parviflora. Raf. Am. Mag. 1. 43.

S. virgatum. Nutt.; Torr. & Gray, Fl. 1. 93. Walp. Rep. 1. 166. Dietr. 8. 710. Fournier, Sisymb. 105. Gray, Proc. Acad. Philad. 1863, 57.

S. alpinum; Braya alpina.
amphibium; Nasturtium amphibium.
arabidoides; Arabis lyrata.
brachycarpum; canescens, incisum.
Californicum; canescens, incisum.
cheiranthoides; Erysimum cheiranthoides.
curvisiliqua; Nasturtium curvisiliqua.
deflexum; reflexum.
dentatum; Arabis dentata.
Edwardsii; Eutrema Edwardsii.
Hartwegianum; incisum.
hispidum; Nasturtium palustre.
humifusum; Arabis lyrata.
incanum; canescens.
S. Indicum; Nasturtium amphibium.
junceum; linifolium.
longepedicellatum; incisum.
lyrata; Arabis lyrata.
Nasturtium; Nasturtium officinale.
Niagarense; officinale.
palustre; Nasturtium palustre.
pygmæum; linifolium, Cheiranthus pygmæus.
reflexum; Arabis Holbœllii.
Sophia; canescens, incisum.
sophioides; Sophia.
tanacetifolium, teres & Walteri; Nasturtium tanacetifolium.
vulgare; Nasturtium sylvestre.

SMELOWSKIA calycina. C. A. Meyer in Ledeb. Fl. Alt. 3. 170. See syn. under *Hutchinsia* in Ledeb. Fl. Ross. 1. 201; Regel & Herd. Pl. Seminov. 2. 143. — Benth. & Hook. Genera, 1. 79. Pl. Bourgeau, 254. Gray, Proc. Acad. Philad. 1863, 58. Watson, King's Rep. 5. 24. Porter, Hayd. Rep. 1871, 478; Fl. Col. 8. Coulter, Hayd. Rep. 1872, 761. Brew. & Wats. Bot. Calif. 1. 42.

Hutchinsia calycina. Desv. Journ. Bot. 3. 168. Spreng. Syst. 2. 863. Hook. Fl.

Bor.-Am. 1. 58, t. 17, f. B. Torr. & Gray, Fl. 1. 114. Hook. & Arn. Bot. Beechey, 122. Seem. Bot. Herald, 25. Hook. f. Arct. Pl. 286. Rothr. Alask. 443.

H. calycina, var. *Americana*. Regel & Herder, l. c. 145.

STANLEYA pinnatifida. Nutt. Genera, 2. 71. DC. Syst. 2. 512; Prodr. 1. 200. James, Cat. 185; Long's Exped. 2. 345. Spreng. Syst. 2. 909. Don, Mill. 1. 214. Torr. & Gray, Fl. 1. 97. Dietr. 3. 717. Nees, Pl. Wied, 4. Torrey, Nicol. Rep. 145. Gray, Genera, 1. 154, t. 65; Pl. Fendl. 9; Pac. R. Rep. 12. 41. Watson, King's Rep. 5. 24. Porter, Fl. Col. 9.

Cleome pinnata. Pursh, 739. Bradbury, Cat. 337.

S. integrifolia. James, Cat. 185; Long's Exped. 2. 345. Torrey, Ann. Lyc. N. Y. 2. 166; Sitgr. Rep. 156, t. 1. Torr. & Gray, Fl. 1. 97. Walp. Rep. 1. 173. Dietr. 3. 717. Dur. & Hilg. in Jour. Acad. Philad. 2. 3. 38; Pac. R. Rep. 5. 5. Gray, Pac. R. Rep. 12. 41; Proc. Acad. Philad. 1863, 58.

S. heterophylla. Nutt.; Torr. & Gray, Fl. 1. 97. Walp. Rep. 1. 173. Dietr. 3. 717. Torrey, Sitgr. Rep. 156.

S. fruticosa. Nutt. Pl. Gamb. in Proc. Acad. Philad. 4. 23, & Jour. 2. 1. 180.

S. tomentosa. Parry, Am. Naturalist, 8. 212.

S. viridiflora. Nutt.; Torr. & Gray, Fl. 1. 98. Walp. Rep. 1. 173. Dietr. 3. 717. Gray, Pl. Fendl. 9. Watson, King's Rep. 5. 25. Porter, Hayd. Rep. 1871, 478; Coulter, same, 1872, 761.

STREPTANTHUS bracteatus. Gray, Pl. Lindh. 143; Genera, 1. 146, t. 60; Pl. Wright. 1. 7 & 2. 11; Proc. Am. Acad. 6. 187; Hall's Pl. Tex. 3. Walp. Ann. 2. 33. Watson, King's Rep. 5. 429.

S. Breweri. Gray, Proc. Calif. Acad. 3. 101; Proc. Am. Acad. 6. 184. Anderson, Cat. 117. Boland. Cat. 5. Watson, King's Rep. 5. 429.

S. carinatus. Wright.; Gray, Pl. Wright. 2. 11; Proc. Am. Acad. 6. 183. Torr. & Gray, Pac. R. Rep. 2. 159. Walp. Ann. 4. 192. Torrey, Mex. Bound. 32. Watson, King's Rep. 5. 429.

S. cordatus. Nutt.; Torr. & Gray, Fl. 1. 77. Walp. Rep. 1. 129. Dietr. 3. 730. Gray, Ives's Rep. 6; Proc. Am. Acad. 6. 183. Watson, King's Rep. 5. 19 & 429. Coulter, Hayd. Rep. 1872, 760.

S. flavescens. Hook. Icon. t. 44. Torr. & Gray, Fl. 1. 77. Hook. & Arn. Bot. Beechey, 322. Walp. Rep. 1. 129. Dietr. 3. 730. Gray, Proc. Am. Acad. 6. 186, in part. Boland. Cat. 5. Watson, King's Rep. 5. 430.

S. glandulosus. Hook. Icon. t. 40. Torr. & Gray, Fl. 1. 77. Hook. & Arn. Bot. Beechey, 322. Walp. Rep. 1. 129. Dietr. 3. 730. Torrey, Mex. Bound. 33. Gray, Proc. Am. Acad. 6. 185. Boland. Cat. 5. Watson, King's Rep. 5. 430.

S. heterophyllus. Nutt.; Torr. & Gray, Fl. 1. 77 & 666. Walp. Rep. 1. 129. Dietr. 3. 730. Watson, King's Rep. 5. 25 & 430.

S. hispidus. Gray, Proc. Calif. Acad. 3. 101; Proc. Am. Acad. 6. 186. Boland. Cat. 5. Watson, King's Rep. 5. 430.

S. hyacinthoides. Hook. Bot. Mag. t. 3516. Torr. & Gray, Fl. 1. 78. Walp. Rep. 1. 129. Dietr. 3. 730. Engelm. & Gray, Pl. Lindh. 3. & 34. Gray, Genera, 1. 146, t. 61; Proc. Am. Acad. 6. 185; Hall's Pl. Tex. 3. Torrey, Marcy's Rep. 280. Watson, King's Rep. 5. 429. Young, Fl. Texas, 161.

S. glabrifolius. Buckley, Proc. Acad. Philad. 1861, 448, fide Gray, same, 1862, 161. Walp. Ann. 7. 194.

S. maculatus. Nutt. in Jour. Acad. Philad. 5. 134, t. 7 (Linn. Litt.-Ber. 1830, 63). Don, Mill. 1. 269. Torr. & Gray, Fl. 1. 76. Walp. Rep. 1. 128. Dietr.

3. 729. Gray, Pl. Wright. 2. 11; Proc. Am. Acad. 6. 183. Watson, King's Rep. 5. 429. Young, Fl. Texas, 161.

? *Brassica Washitana.* Muhl. Cat. 63. Nutt. Genera, 2. 72.

? *Stanleya Washitana.* DC. Syst. 2. 512.

Streptanthus obtusifolius. Hook. Bot. Mag. t. **3317** (Ann. Sci. Nat. 2. 5. 290). Torr. & Gray, Fl. 1. 76. Walp. Rep. 1. 128. Dietr. 3. 729. Gray, Genera, 1. 145, t. **60** (pod).

S. platycarpus. Gray, Pl. Wright. 2. 10; Proc. Am. Acad. 6. 183. Walp. Ann. 4. 192. Torrey, Mex. Bound. 82. Watson, King's Rep. 5. 429.

S. polygaloides. Gray, Proc. Am. Acad. 6. 519. Watson, King's Rep. 5. 430.

S. repandus. Nutt.; Torr. & Gray, Fl. 1. 77. Walp. Rep. 1. 129. Dietr. 3. 730. Gray, Proc. Am. Acad. 6. 186. Watson, King's Rep. 5. 430. Probably an *Arabis.*

S. tortuosus. Kellogg, Proc. Calif. Acad. 2. 152, f. **46.** Gray, Proc. Am. Acad. 6. 184. Watson, King's Rep. 5. 429.

S. cordatus. Torrey, Pac. R. Rep. 4. 65, not Nutt.

S. angustifolius; Arabis Drummondii & Holböllii.
arcuatus; Arabis arcuata.
Brazoensis; Arabis petiolaris.
cordatus; tortuosus.
crassicaulis; Caulanthus crassicaulis.
flavescens; Thelypodium flavescens.
glabrifolius; hyacinthoides.
heterophyllus; Caulanthus Coulteri.
S. linearifolius; Thelypodium linearifolium.
longifolius & micranthus; Thelypodium longifolium.
obtusifolius; maculatus.
petiolaris; Arabis petiolaris.
procerus; Caulanthus procerus.
sagittatus; Thelypodium Nuttallii.
virgatus; Arabis Holböllii.

SUBULARIA aquatica, Linn. See syn. in DC. Syst. 2. 698. — Beck, Bot. 28. Torr. & Gray, Fl. 1. 113. Gray, Genera, 1. 164, t. **71**; Manual, 73. Hook. f. Arct. Pl. 286 & 320.

SYNTHLIPSIS Berlandieri. Gray, Mex. Bound. 34. Walp. Ann. 7. 171. Baill. Hist. Pl. 3. 282.

S. Greggii. Gray, Pl. Fendl. 116; Mex. Bound. 34. Walp. Ann. 2. 40 & 7. 171.

THELYPODIUM brachycarpum. Torrey, Bot. Wilkes, 231, t. **1.** Gray, Proc. Am. Acad. 6. 520. Anderson, Cat. 117. Watson, King's Rep. 5. 25 & 26.

T. flavescens. Watson, King's Rep. 5. 25.

Streptanthus flavescens. Torrey, Pac. R. Rep. 4. 65, not Hook. Watson, l. c. 19.

T. integrifolium. Endl. Gen. Pl. 876. Walp. Rep. 1. 172. Torrey, Frem. Rep. 87. Torr. & Gray, Pac. R. Rep. 2. 126. Watson, King's Rep. 5. 25. Porter, Hayd. Rep. 1871, 478; Fl. Col. 9.

Pachypodium integrifolium. Nutt.; Torr. & Gray, Fl. 1. 96 & 668. Hook. & Arn. Bot. Beechey, 321, t. **74.** Dietr. 3. 702. Hook. in Lond. Jour. Bot. 6. 70. Dur. & Hilg. Pac. R. Rep. 5. 5.

T. laciniatum. Endl. Gen. Pl. 876. Walp. Rep. 1. 172. Watson, King's Rep. 5. 25 & 26. Gray, Proc. Am. Acad. 8. 377. Torrey, Bot. Wilkes, 231.

Macropodium laciniatum. Hook. Fl. Bor.-Am. 1. 48; Bot. Misc. 1. 341, t. **68.** Don, Mill. 1. 166. Dietr. 3. 695.

Pachypodium laciniatum. Nutt.; Torr. & Gray, Fl. 1. 96. Dietr. 3. 702, as *P. ciliatum.*

T. linearifolium. Watson, King's Rep. 5. 25. Porter, Fl. Col. 9.

Streptanthus linearifolius. Gray, Pl. Fendl. 7; Pl. Wright. 1. 7 & 2. 10. Walp. Ann. 2. 33. Torrey, Sitgr. Rep. 155; Pac. R. Rep. 4. 65; Mex. Bound. 32. Porter, Hayd. Rep. 1870, 473.

Iodanthus or *Pachypodium linearifolium.* Gray, Proc. Am. Acad. 6. 187.

T. longifolium. Watson, King's Rep. 5. 25.

Streptanthus longifolius. Benth. Pl. Hartw. 10. Walp. Rep. 1. 129. Dietr. 3. 730. Gray, Pl. Fendl. 6; Pl. Wright. 2. 10; Ives's Rep. 6; Proc. Am. Acad. 6. 187. Torrey, Pac. R. Rep. 4. 65; Mex. Bound. 33. Watson, King's Rep. 5. 19.

S. micranthus. Gray, Pl. Fendl. 7; Proc. Am. Acad. 6. 187. Walp. Ann. 2. 33.

T. Nuttallii. Watson, King's Rep, 5. 25 & 26. Coulter, Hayd. Rep. 1872, 761.

Streptanthus sagittatus. Nutt. in Jour. Acad. Philad. 7. 12. Torr. & Gray, Fl. 1. 76 & 666. Hook. & Arn. Bot. Beechey, 322. Walp. Rep. 1. 128. Dietr. 3. 729. Torrey, Stansb. Rep. 384. Durand, Fl. Utah, 159. Gray, Proc. Am. Acad. 6. 187. Watson, King's Rep. 5. 19.

T. pinnatifidum. Watson's King's Rep. 5. 25.

Hesperis (?) *pinnatifida.* Michx. Fl. 2. 31. Persoon, 2. 203. Poir. Suppl. 3. 197. Pursh, 436. Nutt. Genera, 2. 69. DC. Syst. 2. 456; Prodr. 1. 190. Spreng. Syst. 2. 900. Don, Mill. 1. 204. Beck, Bot. 32.

Cheiranthus hesperidoides. Torr. & Gray, Fl. 1. 72.

Iodanthus hesperidoides. Torr. & Gray; Gray, Genera, 1. 134, **t. 54**; Manual, 1 ed. 33. Chapman, 25. Wood, Bot. & Fl. 36.

Iodanthus pinnatifidus. Gray, Proc. Am. Acad. 6. 188. Watson, King's Rep. 5. 19.

Arabis hesperidoides. Gray, Manual, 68.

T. sagittatum. Endl. Gen. Pl. 876. Walp. Rep. 1. 172. Anderson, Cat. 117. Watson, King's Rep. 5. 25, in part. Brew. & Wats. Bot. Calif. 1. 37.

Pachypodium sagittatum. Nutt.; Torr. & Gray, Fl. 1. 97. Dietr. 3. 702.

T. Wrightii. Gray, Pl. Wright. 1. 7 & 2. 12. Torrey, Sitgr. Rep. 155; Pac. R. Rep. 4. 66; Mex. Bound. 33. Torr. & Gray, Pac. R. Rep. 2. 126. Porter, Fl. Col. 9.

THLASPI alpestre. Linn. Spec. 2 ed. 903. See syn. in DC. Syst. 2. 380. — Hook. Fl. Bor.-Am. 1. 58. Torr. & Gray, Fl. 1. 114. Hook. f. Arct. Pl. 286 & 320, referring it to *T. montanum*, Linn. Watson, King's Rep. 5. 31. Porter, Fl. Col. 10.

T. montanum. Hook. Fl. Bor.-Am. 1. 58, not Linn. Torr. & Gray, Fl. 1. 113.

T. cochleariforme. DC. Syst. 2. 381. See syn. in Ledeb. Fl. Ross. 1. 164; Regel, Fl. Ost-Sib. 1. 201. — Hook. Fl. Bor.-Am. 1. 58; Lond. Jour. Bot. 6. 71. Nutt. in Jour. Acad. Philad. 7. 13. Torr. & Gray, Fl. 1. 114. Gray, Pl. Fendl. 10; Am. Jour. Sci. 2. 33. 242; Proc. Acad. Philad. 1863, 58. Coulter, Hayd. Rep. 1872, 761. Torrey, Bot. Wilkes, 233.

T. Fendleri. Gray, Pl. Wright. 2. 14; Ives's Rep. 7. Torrey, Mex. Bound. 34. Porter, Hayd. Rep. 1870, 473.

T. ARVENSE, Linn. Pursh, 435. Hook. Fl. Bor.-Am. 1. 58. Beck, Bot. 25. Torr. & Gray, Fl. 1. 113. Torrey, Fl. N. Y. 1. 64. Hook. f. Arct. Pl. 286. Pl. Bourgeau, 254. Gray, Manual, 74.

THYSANOCARPUS curvipes. Hook. Fl. Bor.-Am. 1. 69, **t. 18, f. A**; Lond. Jour. Bot. 6. 71. Fisch. & Mey. Ind. Sem. Petr. 2. 25 (Hook. Comp. Bot. Mag. 2. 9; Ann. Sci. Nat. 2. 5. 181; Linn. Litt.-Ber. 1837, 121). Torr. & Gray, Fl. 1. 118.

Hook. & Arn. Bot. Beechey, 324. Walp. Rep. 1. 183. **Gray, Proc. Am. Acad.** 8. 377. Torrey, Bot. Wilkes, 234.

T. elegans. Fisch. & Mey. ll. cc. Hook. Icon. **t. 39.** Torr. & Gray, Fl. 1. 118. Hook. & Arn. Bot. Beechey, 324. Walp. Rep. 1. 183. Benth. Pl. Hartw. 297. Torrey, Pac. R. Rep. 4. 67; Mex. Bound. 35. Boland. Cat. 5. Watson, King's Rep. 5. 31.

T. pulchellus. Fisch. & Mey. ll. cc. Torr. & Gray, Fl. 1. 118. Hook. & Arn. Bot. Beechey, 324. Walp. Rep. 1. 183. Benth. Pl. Hartw. 297. Boland. Cat. 5.

T. runcinatus. Don, Mill. 1. 196. Dietr. 3. 661.

T. laciniatus. Nutt.; Torr. & Gray, Fl. 1. 118. Walp. Rep. 1. 183. Torrey, Pac. R. Rep. 4. 67; Mex. Bound. 35. Gray, Ives's Rep. 7. Watson, King's Rep. 5. 31.

T. crenatus. Nutt.; Torr. & Gray, Fl. 1. 118. Walp. Rep. 1. 183. Torrey, Pac. R. Rep. 4. 67; Mex. Bound. 35. Anderson, Cat. 118.

T. pusillus. Hook. Icon. **t. 42.** Torr. & Gray, Fl. 1. 119. Hook. & Arn. Bot. Beechey, 324. Walp. Rep. 1. 183. Torrey, Pac. R. Rep. 4. 67. Boland. Cat. 5. Watson, King's Rep. 5. 31. Gray, Proc. Am. Acad. 8. 377.

T. oblongifolius. Nutt.; Torr. & Gray, Fl. 1. 118. Walp. Rep. 1. 183. Hook. Lond. Jour. Bot. 6. 72. Torrey, Pac. R. Rep. 4. 67; Bot. Wilkes, 234. Boland. Cat. 5.

T. radians. Benth. Pl. Hartw. 297. Walp. Ann. 2. 52. Boland. Cat. 5. Watson, King's Rep. 5. 31.

TROPIDOCARPUM gracile. Hook. Icon. **t. 43.** Torr. & Gray, Fl. 1. 94. Walp. Rep. 1. 167. Dietr. 3. 701. Torrey, Pac. R. Rep. 4. 66.

T. scabriusculum. Hook. Icon. **t. 52.** Torr. & Gray, Fl. 1. 94. Walp. Rep. 1. 167. Dietr. 3. 701.

TURRITIS *brachycarpa;* Arabis Drummondii.
diffusa; Sisymbrium salsugineum.
glabra; Arabis perfoliata, Drummondii.
Grahami; Arabis Holböllii.
hirsuta; Arabis hirsuta.
lævigata; Arabis lævigata.
lasiophylla; Sisymbrium reflexum.
lyrata; Arabis Canadensis.
T. *macrocarpa;* Arabis perfoliata.
mollis; Arabis Holböllii.
oblongata & ovata; Arabis hirsuta.
patula; Arabis Holböllii, hirsuta.
perfoliata; Arabis perfoliata.
retrofracta; Arabis Holböllii.
salsuginosa; Sisymbrium salsugineum.
spathulata & stricta; Arabis Drummondii.

VESICARIA alpina. Nutt.; Torr. & Gray, Fl. 1. 102. Walp. Rep. 1. 141. Dietr. 3. 639. Hook. Lond. Jour. Bot. 6. 70. Gray, Pl. Lindh. 150. Porter, Hayd. Rep. 1871, 478.

V. arctica. Richards. Frankl. Journ. 15 & 2 ed. 26. DC. Prodr. 1. 159. Spreng. Syst. 2. 872. Hook. Bot. Mag. **t. 2882;** Fl. Bor.-Am. 1. 48; Bot. Misc. 3. 138. Don, Mill. 1. 176. Torr. & Gray, Fl. 1. 100. Dietr. 3. 638. Gray, Pl. Lindh. 149. Durand, Pl. Kane, 186. Lange, Pl. Grönl. 129. Hook. f. in Jour. Linn. Soc. 1. 121; Arct. Pl. 285. Dickie, Jour. Linn. Soc. 3. 110.

Alyssum arcticum. Wormsk.; Hornem. Fl. Dan. 9, **t. 1520.** DC. Syst. 2. 324.

V. arenosa. Richards. l. c. DC. Prodr. 1. 160. Spreng. Syst. 2. 872. Don, Mill. 1. 177. Dietr. 3. 638.

V. argentea. Schauer, Linn. 20. 720. Gray, Pl. Lindh. 150. — (Northern Mexico; Coulter, n. 691.)

V. argyrea. Gray, Pl. Lindh. 146 & 149; Pl. Wright. 1. 10. Walp. Ann. 2. 39. Torr. & Gray, Pac. R. Rep. 2. 159. Torrey, same, 4. 66.

V. auriculata. Engelm. & Gray, Pl. Lindh. 32. Gray, same, 148. Walp. Ann. 2. 38.

V. Berlandieri. Gray in Herb., ined. — (Berlandier, n. 819 & 884.)

V. densiflora. Gray, Pl. Lindh. 145 & 148; Pl. Wright. 1. 10. Walp. Ann. 2. 38. Torrey, Mex. Bound. 33.

V. Engelmanni. Gray, Genera, 1. 162, t. **70**; Pl. Lindh. 144 & 149; Pl. Wright. 1. 10; Hall's Pl. Tex. 3. Walp. Ann. 2. 39.

V. pulchella. Kunth & Bouché, Ind. Sem. Berol. 1848, 15 (Ann. Sci. Nat. 3. 2. 229).

V. Fendleri. Gray, Pl. Fendl. 9; Pl. Lindh. 149; Ives's Rep. 6. Walp. Ann. 2. 39. Torr. & Gray, Pac. R. Rep. 2. 160. Torrey, same, 4. 66.

V. arctica. Gray, Pl. Fendl. 9.

V. stenophylla. Gray, Pl. Lindh. 149; Pl. Wright. 1. 10 & 2. 13. Walp. Ann. 2. 39 & 4. 196. Torrey, Sitgr. Rep. 155; Marcy's Rep. 280; Mex. Bound. 33. Porter, Fl. Col. 6.

V. Gordoni. Gray, Pl. Lindh. 149. Walp. Ann. 2. 38. Torr. & Gray, Pac. R. Rep. 2. 159. (*V. angustifolia.* Gray, Pl. Wright. 2. 13, in part.)

V. gracilis. Hook. Bot. Mag. under t. 3466, & t. **3533.** Torr. & Gray, Fl. 1. 102; Pac. R. Rep. 2. 159. Walp. Rep. 1. 141; Ann. 2. 38. Eat. & Wr. 473. Dietr. 3. 638. Gray, Pl. Lindh. 147; Hall's Pl. Tex. 3.

V. angustifolia. Nutt.; Torr. & Gray, Fl. 1. 101; Pac. R. Rep. 2. 159. Walp. Rep. 1. 141. Eat. & Wr. 473. Dietr. 3. 639. Gray, Pl. Lindh. 145 & 148; Pl. Wright. 2. 13, in part; Ives' Rep. 6. Torrey, Marcy's Rep. 280.

? *V. polyantha.* Schlecht. in Bot. Zeit. 1853, 619. Walp. Ann. 4. 195.

V. grandiflora. Hook. Bot. Mag. t. **3464.** Don in Sweet's Brit. Fl. Gard. 2 ser. t. **404.** Torr. & Gray, Fl. 1. 101, excl. var., & 668. Walp. Rep. 1. 141; Ann. 2. 37. Dietr. 3. 638. Gray, Pl. Lindh. 146 & 148; Hall's Pl. Tex. 3.

V. brevistyla. Torr. & Gray, Fl. 1. 102. Walp. Rep. 1. 141. Dietr. 3. 639.

V. lasiocarpa. Hook. Bot. Mag., under t. 3464. Gray, Pl. Lindh. 150; Pl. Wright. 2. 13. Walp. Ann. 4. 196.

V. Lindheimeri. Gray, Pl. Lindh. 145 & 149. Walp. Ann. 2. 39.

V. Ludoviciana. DC. Syst. 2. 297; Prodr. 1. 159. Spreng. Syst. 2. 871. Torrey, Ann. Lyc. N. Y. 2. 166; Bot. Wilkes, 232. Hook. Fl. Bor.-Am. 1. 48; Lond. Jour. Bot. 6. 70. Don, Mill. 1. 176. Torr. & Gray, Fl. 1. 101; Pac. R. Rep. 2. 160. Dietr. 3. 638. Nees, Pl. Wied, 4. Gray, Pl. Lindh. 149; Proc. Acad. Philad. 1863, 58. Scheele, Röm. Texas, 437. Pl. Bourgeau, 263. Porter, Hayd. Rep. 1870, 473; 1871, 478; Fl. Col. 7.

Myagrum argenteum. Pursh, 434. Poir. Suppl. 5. 592. Bradbury, Cat. 337.

Alyssum Ludovicianum. Nutt. Genera, 2. 63.

V. globosa. Desv. Jour. Bot. 3. 181 & 184. Poir. Suppl. 5. 473. Don, Mill. 1. 176. Dietr. 3. 638.

? *V. arctica.* Pl. Bourgeau, 254. Coulter, Hayd. Rep. 1872, 760.

V. montana. Gray, Proc. Acad. Philad. 1863, 58. Watson, King's Rep. 5. 20. Porter, Hayd. Rep. 1871, 478; Fl. Col. 7.

V. Nuttallii. Torr. & Gray, Fl. 1. 101. Walp. Rep. 1. 142; Ann. 2. 38. Dietr. 3. 639. Gray, Pl. Lindh. 148.

V. pallida. Torr. & Gray, Fl. 1. 668. Gray, Pl. Lindh. 149. Walp. Ann. 2. 39.

V. grandiflora, var. *pallida*. Torr. & Gray, Fl. 1. 101.

V. purpurea. Gray, Pl. Wright. 2. 14; Pl. Thurb. 299. Walp. Ann. 4. 196. Torrey, Mex. Bound. 33.

Var. **albiflora**. Gray, Ives's Rep. 6.

V. recurvata. Engelm.; Gray, Pl. Lindh. 147 & 148; Pl. Wright. 2. 13; Hall's Pl. Tex. 3. Walp. Ann. 2. 38. Torrey, Mex. Bound. 33.

V. angustifolia. Scheele, Linn. 21. 584; Röm. Texas, 436.

V. repanda. Nutt.; Torr. & Gray, Fl. 1. 101. Walp. Rep. 1. 141; Ann. 2. 38. Dietr. 3. 639. Gray, Pl. Lindh. 148.

V. Shortii. Torrey, in Short's Pl. Kentucky, 8d Suppl. 336. Torr. & Gray, Fl. 1. 102. Walp. Rep. 1. 141. Dietr. 3. 639. Gray, Pl. Lindh. 148; Manual, 78.

WAREA amplexifolia. Nutt. in Jour. Acad. Philad. 7. 83, t. **10**. Torr. & Gray, Fl. 1. 98. Dietr. 3. 717. Chapman, 28. Wood, Cl.-Book, 234; Bot. & Fl. 39.

Stanleya amplexifolia. Nutt. in Am. Jour. Sci. 1. 5. 297. DC. Prodr. 1. 200. Spreng. Syst. 2. 909. Don, Mill. 1. 214. Dietr. 3. 717.

W. cuneifolia. Nutt. in Jour. Acad. Philad. 7. 84. Torr. & Gray, Fl. 1. 98. Gray, Genera, 1. 156, t. **66**. Chapman, 28. Wood, Cl.-Book, 234; Bot. & Fl. 39.

Cleome cuneifolia. Muhl. Cat. 64. Nutt. Genera, 2. 73. Elliott, 2. 150. DC. Prodr. 1. 242. Schult. Syst. 7. 45. Don, Mill. 1. 274. Dietr. 2. 1068.

Stanleya gracilis. DC. Syst. 2. 512; Prodr. 1. 200. Spreng. Syst. 2. 909. Don, Mill. 1. 214.

CAPPARIDACEÆ.

ATAMISQUEA emarginata. Miers, Trav. Chil. 2. 529; Trans. Linn. Soc. 21. 1, t. **1**. Walp. Ann. 4. 224. Baill. Hist. Pl. 3. 154. Credited to California by Benth. & Hook. (Gen. Pl. 1. 969); in Coulter's collection, probably Chilian.

CAPPARIS cynophallophora. Linn. Spec. 504. See Griseb. Fl. W. Ind. 18. — Chapman, 32.

C. Jamaicensis. Jacq. Stirp. Am. t. **101**. See Griseb. Fl. W. Ind. 18. — Chapman, 32.

Colicodendron anceps. Shuttl. in Herb.

CLEOME integrifolia. Torr. & Gray, Fl. 1. 122. Walp. Rep. 1. 194. Torrey, Nicol. Rep. 145; Frem. Rep. 87; Sitgr. Rep. 156; Emory's Rep. 137 & 406; Pac. R. Rep. 4. 67. Hook. Lond. Jour. Bot. 6. 72. Gray, Genera, 1. 176, t. **76**; Pl. Fendl. 11; Pac. R. Rep. 12. 41; Am. Jour. Sci. 2. 33. 404; Proc. Acad. Philad. 1863, 58. Porter, Hayd. Rep. 1870, 473; 1871, 479; Fl. Col. 10. . Watson, King's Rep. 5. 32. Coulter, Hayd. Rep. 1872, 761.

C. serrulata. Pursh, 441. Poir. Suppl. 5. 736. Nutt. Genera, 2. 73. James, Cat. 185. Torr. & Gray, Fl. 1. 121. Walp. Rep. 1. 194.

Cleome triphylla. James, Long's Exped. 2. 339.

Peritoma serrulatum. DC. Prodr. 1. 237. Torrey, Ann. Lyc. N. Y. 2. 167. Schult. Syst. 7. 72. Don, Mill. 1. 271. Dietr. 2. 1068. Nees, Pl. Wied, 4.

P. integrifolia. Nutt. in Jour. Acad. Philad. 7. 14.

C. lutea. Hook. Fl. Bor.-Am. 1. 70, t. **25**. Hook. & Arn. Bot. Beechey, 325. Torr. & Gray, Fl. 1. 122; Pac. R. Rep. 2. 126. Lindl. Bot. Reg. 27, t. **67**. Walp. Rep. 1. 194. Torrey, Stansb. Rep. 384; Bot. Wilkes, 236. Durand, Fl. Utah, 159. Cooper, Pac. R. Rep. 12. 51. Gray, Proc. Am. Acad. 8. 377.

Peritome aurea. Nutt. in Jour. Acad. Philad. 7. 15.

C. aurea. Nutt.; Torr. & Gray, Fl. 1. 122. Walp. Rep. 1. 194. Hook. Lond. Jour. Bot. 6. 72. Watson, King's Rep. 5. 32. Porter, Hayd. Rep. 1871, 479; Coulter, same, 1872, 761.

C. platycarpa. Torrey, Bot. Wilkes, 235, **t. 2.**

C. PUNGENS, Willd. Chapman, 32. Wood, Bot. & Fl. 44. Young, Fl. Tex. 162.

C. Sonoræ. Gray, Pl. Wright. 2. 16; Pl. Thurb. 300. Walp. Ann. 4. 223. Torrey, Mex. Bound. 35.

C. sparsifolia. Watson, King's Rep. 5. 32, **t. 5.**

C. ——? Watson, l. c. 5. 32.

CLEOMELLA angustifolia. Torrey, in Gray, Pl. Wright. 1. 12 (Kew Jour. Bot. 2. 255); Sitgr. Rep. 175; Mex. Bound. 35. Walp. Ann. 2. 57. Gray, Am. Jour. Sci. 2. 33. 404, & Proc. Acad. Philad. 1863, 58, as *C. tenuifolia.* Watson, King's Rep. 5. 33. Porter, Fl. Col. 11.

C. Mexicana. Torrey, Ann. Lyc. N. Y. 2. 167, not DC. Hook. Icon. **t. 28.** Torr. & Gray, Fl. 1. 121. Engelm. & Gray, Pl. Lindh. 3. Gray, Genera, 1. 174, **t. 75.**

C. longipes. Torrey, in Gray, Pl. Wright. 1. 11 (Kew Jour. Bot. 2. 255); Mex. Bound. 35. Gray, Pl. Wright. 2. 16; Pl. Thurb. 300; Proc. Am. Acad. 6. 521. Walp. Ann. 2. 57. Anderson, Cat. 118. Watson, King's Rep. 5. 33.

C. obtusifolia. Torrey, Frem. Rep. 311 (Bot. Zeit. 5. 40); Gray, Pl. Wright. 1. 11 (Kew Jour. Bot. 2. 254). Walp. Ann. 1. 59 & 2. 57. Gray, Proc. Am. Acad. 7. 329.

C. parviflora. Gray, Proc. Am. Acad. 6. 520. Anderson, Cat. 118. Watson, King's Rep. 5. 33.

C. plocasperma. Watson, King's Rep. 5. 33.

CRISTATELLA erosa. Nutt. in Jour. Acad. Philad. 7. 86, **t. 11.** Torr. & Gray, Fl. 1. 123. Engelm. & Gray, Pl. Lindh. 3. Gray, Hall's Pl. Tex. 3.

Cyrbasium erosum. Endl. Gen. Pl. 892. Walp. Rep. 1. 196.

C. Jamesii. Torr. & Gray, Fl. 1. 124. Gray, Genera, 1. 178, **t. 77**; Pl. Fendl. 10. Torrey, Pac. R. Rep. 4. 67; Mex. Bound. 35. Schnizl. Icon. **t. 182, f. 4.**

Cleome, n. sp. Torrey, Ann. Lyc. N. Y. 2. 168.

Cyrbasium Jamesii. Endl. Gen. Pl. 892. Walp. Rep. 1. 196.

GYNANDROPSIS PENTAPHYLLA DC. Beck, Bot. 34. Hook. Jour. Bot. 1. 192. Torr. & Gray, Fl. 1. 121. Gray, Genera, 1. 180, **t. 78.** Chapman, 32.

Cleome pentaphylla, Linn. Barton, Bot. Appx. 31, **t. 26.** Pursh, 441. Nutt. Genera, 2. 73. Elliott, 2. 150.

Cleome heptaphylla. Audubon, Birds, **t. 379,** not Linn.

ISOMERIS arborea. Nutt.; Torr. & Gray, Fl. 1. 124. Grah. in Bot. Mag. **t. 3842.** Benth. Bot. Sulph. 6. Torrey, Pac. R. Rep. 7. 8; Mex. Bound. 35, **t. 4.** Gray, Ives's Rep. 7; Proc. Bost. Soc. Nat. Hist. 7. 146.

OXYSTYLIS lutea. Torrey, Frem. Rep. 313 (Bot. Zeit. 5. 41). Gray, Pl. Wright. 1. 11. Walp. Ann. 1. 59.

POLANISIA graveolens. Raf. in Am. Jour. Sci. 1. 1. 378; Jour. Phys. 1819, 98; Med. Bot. 2. 61, **f. 74.** DC. Prodr. 1. 242. Torrey, Ann. Lyc. N. Y. 2. 167; Fl. N. Y. 1. 67; Nicol. Rep. 145; Emory's Rep. 137 & 406; Marcy's Rep. 280; Bot. Wilkes, 236. Hook. Fl. Bor.-Am. 1. 71. Don, Mill. 1. 275. Beck, Bot. 34. Deless. Icon. Sel. 3. 4, **t. 6.** Darling. Fl. Cestr. 600. Spach, Hist. Veg. 6. 304. Torr. & Gray,

Fl. 1. 23 & 669. Gray, Struct. Bot. 391, f. **707–710**; Manual, 76. Parry, Pl. Minn. 609. Brew. & Wats. Bot. Calif. 1. 51.

Cleome dodecandra. Michx. Fl. 2. 32, not Linn. Pursh, 441. Nutt. Genera, 2. 73. Barton, Fl. N. Am. 1. 83, t. **22**. Bigel. Fl. Bost. 2 ed. 254.

C. viscosa. Spreng. Syst. 2. 125, in part.

C. graveolens. Schult. Syst. 7. 45.

P. tenuifolia. Torr. & Gray, Fl. 1. 123. Eat. & Wr. 365. Walp. Rep. 1. 196. Chapman, 31. Wood, Bot. & Fl. 44.

P. trachysperma. Torr. & Gray, Fl. 1. 669. Walp. l. c. Engelm. in Wisliz. Rep. 9. Gray, Genera, 1. 182, t. **79**; Pl. Lindh. 150; Pl. Fendl. 10; Pl. Wright. 1. 11. Porter, Hayd. Rep. 1870, 473. Young, Fl. Texas, 163. Brew. & Wats. l. c.

P. uniglandulosa. Torrey, Pac. R. Rep. 4. 67; Mex. Bound. 35. Watson, King's Rep. 5. 34. Porter, Fl. Col. 11.

P. uniglandulosa. DC. Prodr. 1. 242. Gray, Pl. Wright. 1. 10.

Cleome uniglandulosa. Cav. Icon. 4, t. **306**.

WISLIZENIA Palmeri. Gray, Proc. Am. Acad. 8. 622. Brew. & Wats. l. c. 52.

W. refracta. Engelm. in Wisliz. Rep. 14. Gray, Pl. Wright. 1. 11, t. **2**, & 2. 16. Walp. Ann. 3. 823. Torrey, Pac. R. Rep. 7. 8; Mex. Bound. 35. Baill. Hist. Pl. 3. 149. Brew. & Wats. l. c.

Cleomella Coulteri. Harv.; Gray, Pl. Wright. 1. 12 & 129.

RESEDACEÆ.

OLIGOMERIS subulata. Boiss. Fl. Or. 1. 435. Muell. in DC. Prodr. 16^2. 587, with syn. Watson, Proc. Am. Acad. 11. 109 & 113. Brew. & Wats. Bot. Calif. 1. 53.

Reseda subulata. Delile, Fl. Ægypt. 15.

O. glaucescens. Camb. in Jacquem. Voy. 4. 24, t. **25**. Torr. & Gray, Fl. 1. 669. Gray, Pl. Wright. 2. 16; Pl. Thurb. 305; Ives' Rep. 7. Torrey, Pac. R. Rep. 5. 359; Mex. Bound. 35.

Resedella subulata. Webb & Berthol. Phyt. Canar. 1. 107, t. **11**.

Ellimia ruderalis. Nutt.; Torr. & Gray, Fl. 1. 125. Eat. & Wr. 231.

O. dispersa, var. *Webbiana.* J. Muell. Monogr. Reseda. 215, t. **10**, f. **128**.

CISTACEÆ.

HELIANTHEMUM arenicola. Chapman, 35. Wood, Bot. & Fl. 48.

H. Canadense, var. *obtusum.* Wood, Cl.-Book. 246.

H. Canadense. Michx. Fl. 1. 308. Pursh, 363. James, Long's Exped. 2. 336. Dunal, DC. Prodr. 1. 269. Elliott, 2. 4. Spreng. Syst. 2. 588. Sweet, Cistin. t. **21**. Hook. Fl. Bor.-Am. 1. 72. Don, Mill. 1. 303. Beck, Bot. 35. Darling. Fl. Cestr. 313. Torr. & Gray, Fl. 1. 151. Dietr. 3. 249. Torrey, Fl. N. Y. 1. 77. Emerson, Mass. Trees, 517. Gray, Genera, 1. 204, t. **87**; Struct. Bot. 393, f. **713–719**; Manual, 80; Hall's Pl. Tex. 3. Parry, Pl. Minn. 609. Chapman, 36.

Lechea major. Linn. Amœn. 8. 11, excl. fig. Lam. Dict. 3. 467. Willd. Spec. 1. 495. Smith, Rees Cyc. n. 2.

Cistus Canadensis. Hill, Veg. Syst. 14, t. **36**, f. **3**. Walt. Fl. Car. 152. Lam. Dict. 2. 23. Willd. Spec. 2. 1199. Ait. f. Hort. Kew. 3, 310. James, Long's Exped. 1. 54. Bigel. Fl. Bost. 29.

H. ramuliflorum. Michx. Fl. 1. 307. Persoon, 2. 77. Pursh, 363. Elliott, 2. 4. Spreng. Syst. 2. 588. Don, Mill. 1. 303. Beck, Bot. 35.

Cistus ramuliflorum. Poir. Suppl. 2. 274.

H. rosmarinifolium. Pursh, 364. Dunal, DC. Prodr. 1. 269. Spreng. Syst. 2. 588. Don, Mill. 1. 303.

H. corymbosum. Pursh, 363.

Heteromeris Canadensis. Spach, Ann. Sci. Nat. 2. 6. 370; Hist. Veg. 6. 99.

Heteromeris Michauxii. Spach, Comp. Bot. Mag. 2. 291.

H. capitatum. Nutt.; Engelm. & Gray, Pl. Lindh. 4. Gray, Hall's Pl. Tex. 3.

Heteromeris polifolia. Spach, Comp. Bot. Mag. 2. 291; Ann. Sci. Nat. 2. 6. 371; Hist. Veg. 6. 101.

Helianthemum polifolium. Torr. & Gray, Fl. 1. 151. Walp. Rep. 1. 209. Young, Fl. Texas, 165.

H. Carolinianum. Michx. Fl. 1. 307. Persoon, 2. 77. Pursh, 364. Dunal, DC. Prodr. 1. 269. Elliott, 2. 5. Spreng. Syst. 2. 588. Sweet, Cistin. t. **99.** Don, Mill. 1. 303. Hook. Jour. Bot. 1. 192. Torr. & Gray, Fl. 1. 152. Dietr. 3. 249. Chapman, 35. Wood, Cl.-Book, 246; Bot. & Fl. 48. Gray, Hall's Pl. Tex. 3.

Cistus Carolinianus. Walt. Fl. Car. 152. Vent. Hort. Cels, t. **74.** Poir. Suppl. 2. 274.

Crocanthemum Carolinianum. Spach, Ann. Sci. Nat. 2. 6. 370; Hist. Veg. 6. 97.

H. corymbosum. Michx. 1. 307. Persoon, 2. 76. Dunal, DC. Prodr. 1. 269. Elliott, 2. 5. Spreng. Syst. 2. 588. Don, Mill. 1. 303. Beck, Bot. 36. Torr. & Gray, Fl. 1. 151. Dietr. 3. 249. Loud. Arbor. 1. 333. Chapman, 35. Gray, Manual, 81.

Cistus corymbosus. Poir. Suppl. 2. 272.

Heteromeris cymosa. Spach, Comp. Bot. Mag. 2. 291; Ann. Sci. Nat. 2. 6. 371; Hist. Veg. 6. 103.

H. scoparium. Nutt.; Torr. & Gray, Fl. 1. 152. Walp. Rep. 1. 209. Dietr. 3. 249. Benth. Pl. Hartw. 299. Lindl. in Jour. Hort. Soc. 5. 79 (Paxt. Fl. Gard. 1. 14). Torrey, Mex. Bound. 36; Bot. Wilkes, 239. Gray, Ives's Rep. 7; Proc. Am. Acad. 6. 521. Boland. Cat. 5.

H. ——— ? Hook. & Arn. Bot. Beechey, 135.

Linum trisepalum. Kellogg, Proc. Calif. Acad. 3. 42, f. **10.**

HUDSONIA ericoides. Linn. Mant. 74. "Berg. Act. Holm. 18, t. **2.**" "Svensk. Acad. 1778, t. **1.**" Lam. Dict. 3. 148; Ill. 2. 520, t. **401.** Willd. Hort. Berol. t. **15.** Kön. & Sims, Ann. Bot. 1. 566. Gaert. Fruct. t. **210.** Persoon, 2. 6. Ait. f. Hort. Kew. 3. 147. Pursh, 364. Smith, Rees Cyc. n. 1. Lodd. Cab. t. **192.** Nutt. Genera, 2. 4. Dunal, DC. Prodr. 1. 285. Spreng. Syst. 2. 452. Sweet, Cistin. t. **36.** Don, Mill. 1. 315, f. **61.** Beck, Bot. 37. Spach, Ann. Sci. Nat. 2. 6. 373; Hist. Veg. 6. 114. Torr. & Gray, Fl. 1. 155. Dietr. 3. 25. Torrey, Fl. N. Y. 1. 80. Loud. Arbor. 1. 354, f. **76.** Emerson, Mass. Trees, 519. Gray, Manual, 81.

H. Nuttallii. Don, Mill. 1. 315. Dietr. 3. 25. Loud. Arbor. 1. 354.

H. montana. Nutt. Genera, 2. 5. Dunal, DC. Prodr. 1. 285. Spreng. Syst. 2. 452. Don, Mill. 1. 315. Spach, Ann. Sci. Nat. 2. 6. 373. Torr. & Gray, Fl. 1. 155. Dietr. 3. 25. Chapman, 36. Wood, Cl.-Book, 246; Fl. & Bot. 48.

H. tomentosa. Nutt. Genera, 2. 5. Spreng. Neue Entdeck. 2. 131. Dunal, DC. Prodr. 1. 285. Sweet, Cistin. t. **57.** Spreng. Syst. 2. 452. Hook. Fl. Bor.-Am. 1. 73. Don, Mill. 1. 316. Beck, Bot. 37. Bigel. Fl. Bost. 2 ed. 213. Spach, Ann. Sci. Nat. 2. 6. 373; Hist. Veg. 6. 114. Torr. & Gray, Fl. 1. 155. Dietr. 3. 25.

Torrey, Fl. N. Y. 1. 80, t. **9**; Nicol. Rep. 146. Loud. Arbor. 1. 354. Emerson, Mass. Trees, 519. Gray, Genera, 1. 208, t. **90**; Manual, 81. Richards. Arct. Exped. 422. Matthew, Canad. Naturalist, 12. 159.

H. ericoides. Richards. Frankl. Journ. 11.

LECHEA Drummondii. Torr. & Gray, Fl. 1. 154. Walp. Rep. 1. 213. Engelm. & Gray, Pl. Lindh. 4. Gray, Genera, 1. 206, t. **89**; Hall's Pl. Tex. 3. Baill. Hist. Pl. 4. 327. Young, Fl. Texas, 165.

Lechidium Drummondii. Spach, Comp. Bot. Mag. 2. 287; Ann. Sci. Nat. 2. 6. 372; Hist. Veg. 6. 112.

Linum San-Sabeanum. Buckley, Proc. Acad. Philad. 1861, 450, fide Gray, same, 1862, 162.

L. major. Michx. Fl. 1. 76, not Linn. Persoon, 1. 112. Ait. f. Hort. Kew. 1. 185. Poir. Dict. 3. 340. Pursh, 90. Muhl. Cat. 15. Bigel. Fl. Bost. 47. Röm. & Schult. Syst. 2. 860. Torrey, Fl. U. S. 1. 160; Fl. N. Y. 1. 78. Beck, Am. Jour. Sci. 1. 10. 262. Torr. & Gray, Fl. 1. 153. Emerson, Mass. Trees, 518. Chapman, 36. Lesqx. Fl. Ark. 350. Gray, Manual, 81.

L. minor. Linn. Amœn. 3. 10. Lam. Dict. 3. 468. Willd. Spec. 1. 495? Persoon, 1. 112? Ait. f. Hort. Kew. 1. 185? Smith, Rees Cyc. n. 1.

L. villosa. Elliott, 1. 184. Dunal, DC. Prodr. 1. 285. Spreng. Syst. 1. 363. Hook. Fl. Bor.-Am. 1. 72; Jour. Bot. 1. 192. Don, Mill. 1. 316. Beck, Bot. 36. Darling. Fl. Cestr. 96. Spach, Ann. Sci. Nat. 2. 6. 372, t. **17**, f. **10**, **11**; Hist. Veg. 6. 109. Dietr. 1. 415.

L. mucronata. Raf. Jour. Bot. 4. 269. Röm. & Schult. Syst. 2, Mant. 467.

? *L. Drummondii.* Spach, Comp. Bot. Mag. 2. 284; Ann. Sci. Nat. 2. 6. 372; Hist. Veg. 6. 110.

L. minor. Walt. Fl. Car. 83? Lam. Ill. 1. 221, t. **52**, f. **1**? Pursh, 91. Bigel. Fl. Bost. 48. Röm. & Schult. Syst. 2. 859 & Mant. 467. Dunal, DC. Prodr. 1. 285. Torrey, Fl. U. S. 160; Fl. N. Y. 1. 79. Hook. Fl. Bor.-Am. 1. 73. Don, Mill. 1. 316. Beck, Bot. 36. Spach, Ann. Sci. Nat. 2. 6. 372. Darling. Fl. Cestr. 97. Torr. & Gray, Fl. 1. 153, excl. vars.; Pac. R. Rep. 2. 160. Dietr. 1. 416. Emerson, Mass. Trees, 518. Gray, Pl. Fendl. 11; Manual, 82, in part. Chapman, 36.

L. Novæ-Cesareæ. C. F. Austin; Gray, Manual, 81. Wood, Bot. & Fl. 47.

? *L. thymifolia.* Michx. Fl. 1. 77. Persoon, 1. 112. Poir. Suppl. 3. 340.

? *L. minor.* Hook. Jour. Bot. 1. 192.

L. racemulosa. Lam. Ill. 2. 423, t. **281**, f. **3**. Michx. Fl. 1. 77. Persoon, 1. 112. Poir. Suppl. 3. 340. Pursh, 91. Smith, Rees Cyc. n. 3. Röm. & Schult. Syst. 2. 860. Elliott, 1. 184. Dunal, DC. Prodr. 1. 285. Torrey, Fl. U. S. 161. Spreng. Syst. 1. 363. Don, Mill. 1. 316. Beck, Bot. 36. Usually made a form of *L. minor.*

L. thesioides. Spach, Comp. Bot. Mag. 2. 285; Ann. Sci. Nat. 2. 6. 372; Hist. Veg. 6. 111.

L. minor, var. *β.* Torr. & Gray, Fl. 1. 154.

L. tenuifolia. Michx. Fl. 1. 77. Persoon, 1. 112. Poir. Suppl. 3. 341. Pursh, 91. Smith, Rees Cyc. n. 5. Röm. & Schult. Syst. 2. 861 & Mant. 467. Elliott, 1. 185. Dunal, DC. Prodr. 1. 286. Spreng. Syst. 2. 363. Don, Mill. 1. 316. Dietr. 1. 416. Usually made a form of *L. minor.*

L. minor, var. *γ.* Torr. & Gray, Fl. 1. 154.

L. minor. Gray, Hall's Pl. Tex. 3.

L. thymifolia. Pursh, 91, not Michx. Smith, Rees Cyc. n. 4. Röm. & Schult. Syst. 2. 859. Elliott, 1. 185. Torrey, Fl. U. S. 161; Fl. N. Y. 1. 79. Spreng. Syst. 2. 363. Don, Mill. 1. 316. Beck, Bot. 36. Torr. & Gray, Fl. 1. 153. Dietr. 1. 416.

Emerson, Mass. Trees, 518. Gray, Genera, 1. 206, t. **88**; Manual, 81. Matthew, Pl. Acadia, 21.

L. Torreyi. W. H. Leggett, ined.

L. racemulosa. Hook. Jour. Bot. 1. 193.

VIOLACEÆ.

IONIDIUM concolor. Benth. & Hook. Genera, 1. 118.

Viola concolor. Forst. in Linn. Trans. 6. 308, t. **28**. Poir. Dict. 8. 648. Ait. f. Hort. Kew. 2. 48. Pursh, 175. Nutt. Genera, 1. 151. Barton, Comp. Fl. Phil. 1. 125. Röm. & Schult. Syst. 5. 377. Elliott, 1. 303. Schwein. in Am. Jour. Sci. 1. 5. 79. Torrey, Fl. U. S. 258.

Solea stricta. Spreng. Pl. Min. Cog. 1. 22.

Ionidium Sprengelianum. Röm. & Schult. Syst. 5. 401.

Solea concolor. Ging. in DC. Prodr. 1. 306. Torrey, Ann. Lyc. N. Y. 2. 168; Fl. N. Y. 1. 76. Don, Mill. 1. 335. Beck, Bot. 42. Torr. & Gray, Fl. 1. 144. Gray, Genera, 1. 188, t. **81**; Manual, 77. Chapman, 34. Lesqx. Fl. Ark. 349.

Noisettia acuminata. DC. Prodr. 1. 290. Don, Mill. 1. 319. Torr. & Gray, Fl. 1. 136 & 671.

Hybanthus concolor. Baill. Hist. Pl. 4. 352.

I. fruticulosum. Benth. Bot. Sulph. 7, t. **2**. Walp. Rep. 5. 60. Gray, Proc. Am. Acad. 5. 154 (var. **dentatum**). — (Lower California.)

I. lineare. Torrey, Ann. Lyc. N. Y. 2. 168; Mex. Bound. 36. Torr. & Gray, Fl. 1. 145. Walp. Rep. 1. 221; Ann. 4. 234. Gray, Genera, 1. 190, t. **82**; Pl. Lindh. 151; Pl. Wright. 1. 12 & 2. 16; Pl. Thurb. 300; Proc. Acad. Philad. 1868, 58; Hall's Pl. Tex. 3. Porter, Fl. Col. 11.

Var. Gray, Pl. Lindh. 152; Pl. Wright. 1. 12.

I. stipulaceum. Nutt.; Torr. & Gray, Fl. 1. 144. Walp. Rep. 1. 221.

I. riparium, var. Gray, Pl. Wright. 2. 16.

VIOLA Beckwithii. Torr. & Gray, Pac. R. Rep. 2. 119, t. **1** (Regensb. Flora, 1858, 622). Durand, Pl. Pratten, 82. Walp. Ann. 4. 232 & 7. 210. Anderson, Cat. 118. Watson, King's Rep. 5. 35.

V. montana. Kellogg, Proc. Calif. Acad. 1. 56.

V. biflora. Linn. Spec. 936. See syn. in Hook. Bot. Mag. under t. **2089**; Ledeb. Fl. Ross. 1. 254; Regel, Fl. Ost-Sib. 1. 253, including *V. glabella.* — DC. Prodr. 1. 300. Don, Mill. 1. 329. Gray, Am. Jour. Sci. 2. 33. 404; Proc. Acad. Philad. 1863, 58. Hook. f. Arct. Pl. 286. Porter, Fl. Col. 11.

V. blanda. Willd. Hort. Berol. t. **24** (Schrad. Jour. Bot. 1807, 112). Ait. f. Hort. Kew. 2. 45. Pursh, 172. Poir. Suppl. 4. 483. Nutt. Genera, 1. 149. Röm. & Schult. Syst. 5. 358. Elliott, 1. 298. Schwein. Mon. Viol. in Am. Jour. Sci. 1. 5. 65. Reichenb. Icon. Bot. 1. 40, t. **51, f. 104**. Torrey, Fl. U. S. 254; Fl. N. Y. 1. 72. Ging. in DC. Prodr. 1. 295. Bigel. Fl. Bost. 99. Spreng. Syst. 1. 798. Le Conte, Ann. Lyc. N. Y. 2. 144. Hook. Fl. Bor.-Am. 1. 76; Jour. Bot. 1. 193. Don, Mill. 1. 323. Beck, Bot. 40. Darling. Fl. Cestr. 145. Torr. & Gray, Fl. 1. 138. Hook. & Arn. Bot. Beechey, 122. Dietr. 1. 841. Ledeb. Fl. Ross. 1. 247. Chapman, 33. Hook. f. Arct. Pl. 320, referring it to *V. palustris.* Rothr. Alask. 444. Regel, Fl. Ost-Sib. 1. 216 & 234, t. **6, f. 20–23**. Gray, Manual, 77; Proc. Am. Acad. 8. 377. Willis, Pl. N. Jer. 7.

V. clandestina. Pursh, 173. Poir. Suppl. 4. 484. Röm. & Schult. Syst. 5. 358.

Schwein. l. c. 65. Torrey, Fl. U. S. 254. Le Conte, l. c. 146. Hook. Fl. Bor 1. 77. Don, Mill. 1. 324. Beck, Bot. 40.

V. obliqua. Pursh, 172, not Ait.

V. amœna. Le Conte, l. c. 144.

V. Leconteana. Don, Mill. 1. 324. Walp. Rep. 1. 217.

V. Canadensis. Linn. Spec. 936. Hill, Veg. Syst. 22, **t. 59, f. 4.** Ait. Kew. 3. 290. Willd. Spec. 1. 1166. Michx. Fl. 2. 150. Persoon, 1. 254. Dict. 8. 635. Pursh, 174. Nutt. Genera, 1. 150. Röm. & Schult. Syst. 5 Elliott, 1. 301. Schwein. l. c. 68. Richards. Frankl. Journ. 6. Reichenb. Bot. 1. 45, **t. 54, f. 113.** Ging. in DC. Prodr. 1. 301. Bigel. Fl. Bost. 103. T Fl. U. S. 255; Fl. N. Y. 1. 75; Nicol. Rep. 145; Pac. R. Rep. 4. 68. Spreng 1. 801. Le Conte, l. c. 148. Sweet, Br. Fl. Gard. 2 ser. **t. 62.** Hook. Fl. Am. 1. 80. Don, Mill. 1. 329. Bong. Sitch. 125. Beck, Bot. 40. Torr. & Fl. 1. 143. Dietr. 1. 843. Nees, Pl. Wied, 4. Gray, Pl. Fendl. 11; Pac. R 12. 41; Manual, 79. Parry, Pl. Minn. 609. Chapman, 34. Watson, King' 5. 35. Coulter, Hayd. Rep. 1872, 761. Porter, Fl. Col. 11. Willis, Pl. N. Je

V. albiflora. Link, Enum. Hort. Berol. 1. 141.

Lophion Canadense. Spach, Hist. Veg. 5. 517.

V. canina. Linn. Spec. 935. See syn. in Ledeb. Fl. Ross. 1. 252; Babi Henf. Bot. Gaz. 2. 141; Koch, Fl. Germ. 3 ed. 73; Hook. f. Arct. Pl. 286 & Regel, Fl. Ost-Sib. 1. 244. — Walt. Fl. Car. 219. Schrank, Pfl. Lab. 12. Ric Frankl. Journ. 6. Ging. in DC. Prodr. 1. 298. Cham. & Schlecht. in Linn. Meyer, Pl. Lab. 89. Hook. Fl. Bor.-Am. 1. 79. Schlecht. in Linn. 10. 102. Pl. Grönl. 131. Boland. Cat. 5. Watson, King's Rep. 5. 34. Porter, Hay 1871, 478; Fl. Col. 11. The American plant referable to the following varie

Var. **sylvestris.** Regel, Fl. Ost-Sib. 1. 245. Gray, Manual, 79. Coulter, Rep. 1872, 761.

V. asarifolia. Schreb.; Muhl. Ind. Fl. Lanc. 178; Cat. 25.

V. debilis. Pursh, 174, not Michx. Nutt. Genera, 1. 150. Schwein. l. Richards. Frankl. Journ. 6. Ging. in DC. Prodr. 1. 298. Lodd. Cab. t. Don, Mill. 1. 327.

V. uliginosa. Muhl. Cat. 25, not Schrad. Schwein. l. c. 72.

V. Labradorica. Schrank, Pfl. Lab. 12. Röm. & Schult. Syst. 5. 380. G DC. Prodr. 1. 306. Meyer, Pl. Lab. 89. Don, Mill. 1. 334.

V. punctata. Schwein. l. c. 48. Ging. in DC. Prodr. 1. 305.

V. conspersa. Reichenb. Icon. Bot. 1. 44, **t. 52, f. 108.** Spreng. Syst. Dietr. 1. 842.

V. Muhlenbergii. Torrey, Fl. U. S. 1. 256; Fl. N. Y. 1. 73. Ging. in DC. 1. 297. Le Conte, Ann. Lyc. N. Y. 2. 148. Hook. Fl. Bor.-Am. 1. 78; Jour. Bot. 6. 73. Don, Mill. 1. 326. Beck, Bot. 40. Darling. Fl. Cest Torr. & Gray, Fl. 1. 140. Hook. & Arn. Bot. Beechey, 325. Walp. Rep. Gray, Manual, 1 ed. 46; Am. Jour. Sci. 2. 33. 404. Chapman, 34. Liebm. F Suppl. **t. 2710.** Willis, Pl. N. Jer. 9.

? *V. radicans.* Ging. in DC. Prodr. 1. 297. Le Conte, l. c. 153. Don 1. 326. Torr. & Gray, Fl. 1. 144.

Var. **rupestris.** Regel, Fl. Ost-Sib. 1. 250.

V. Muhlenbergii, vars. β & γ. Hook. Fl. Bor.-Am. 1. 78. Torr. & Gr 1. 140. Lange, Pl. Grönl. 131. Chapman, 34.

V. Allionii. Schlecht. in Linn. 10. 103.

Var. **adunca.** Gray, Proc. Am. Acad. 8. 377.

V. adunca. Smith, Rees Cyc. n. 63. Hook. Fl. Bor.-Am. 1. 79. Don, Mill.

Torr. & Gray, Fl. 1. 141. Hook. & Arn. Bot. Beechey, 135. Torrey, Pac. R. Rep. 4. 68; Mex. Bound. 35; Bot. Wilkes, 238. Newberry, Pac. R. Rep. 6. 67. Cooper, same, 12. 56.

V. debilis. Nutt. Jour. Acad. Philad. 7. 15, not Michx.

V. longipes. Nutt.; Torr. & Gray, Fl. 1. 140. Walp. Rep. 1. 218. Benth. Pl. Hartw. 298. Durand, Pl. Pratten. 82. Newberry, Pac. R. Rep. 6. 67. Kellogg, Proc. Calif. Acad. 1. 53.

V. Muhlenbergii, var. *pubescens.* Gray, Am. Jour. Sci. 2. 33. 404; Proc. Acad. Philad. 1863, 58.

V. chrysantha. Hook. Icon. **t. 49,** not Schrad. Torr. & Gray, Fl. 1. 143 & 671. Hook. & Arn. Bot. Beechey, 325. Walp. Rep. 1. 218. Benth. Pl. Hartw. 298. Torrey, Pac. R. Rep. 4. 68. Newberry, same, 6. 67. Kellogg, Proc. Calif. Acad. 2. 229, **f. 72.** Boland. Cat. 6.

V. Douglasii. Steud. Nomenclator, 2. 771.

V. cucullata. Ait. Hort. Kew. 3. 288. Willd. Spec. 1. 1162; Enum. 263. Persoon, 1. 254. Poir. Dict. 8. 627. Pursh, 173. Bot. Mag. **t. 1795.** Röm. & Schult. Syst. 5. 355. Elliott, 1. 298. Schwein. l. c. 60. Ging. in DC. Prodr. 1. 292. Bigel. Fl. Bost. 101. Torrey, Fl. U. S. 251; Fl. N. Y. 1. 70; Nicol. Rep. 145; Emory's Rep. 137 & 406; Pac. R. Rep. 4. 68; Mex. Bound. 36; Bot. Wilkes, 237. Spreng. Syst. 1. 798. Le Conte, l. c. 137. Hook. Fl. Bor.-Am. 1. 75; Jour. Bot. 1. 193. Don, Mill. 1. 321; Sweet, Br. Fl. Gard. 2 ser. **t. 298.** Beck, Bot. 38. Spach, Hist. Veg. 5. 508. Darling. Fl. Cestr. 143. Torr. & Gray, Fl. 1. 137. Dietr. 1. 841. Nees, Pl. Wied, 4. Gray, Pl. Fendl. 11; Pac. R. Rep. 12. 41; Manual, 78. Parry, Pl. Minn. 609. Newberry, Pac. R. Rep. 6. 67. Chapman, 33. Lesqx. Fl. Ark. 350. Anderson, Cat. 118. Watson, King's Rep. 5. 34. Porter, Hayd. Rep. 1871, 478; Fl. Col. 11. Willis, Pl. N. Jer. 7.

V. obliqua. Hill, Hort. Kew. 316, **t. 12;** Veg. Syst. 13. 63, **t. 16** & 22, **t. 61.** Ait. Hort. Kew. 3. 288. Willd. Spec. 1. 1161. Persoon, 1. 254. Poir. Dict. 8. 626. Muhl. Cat. 25. Röm. & Schult. Syst. 5. 355. Schwein. l. c. 60. Torrey, Fl. U. S. 251. Don, Mill. 1. 321.

V. papilionacea. Pursh, 173. Poir. Suppl. 4. 484. Röm. & Schult. Syst. 5. 356. Ging. in DC. Prodr. 1. 292. Spreng. Syst. 1. 797. Don, Mill. 1. 321.

V. asarifolia. Pursh, 732, not Muhl. Poir. l. c. Röm. & Schult. Syst. 5. 358. Spreng. l. c. Schwein. l. c. 58. Ging. l. c. Le Conte, l. c. 141. Don, l. c. Dietr. 1. 840.

V. affinis & congener. Schwein. l. c. 138 & 140. Don, Mill. 1. 321.

Var. **cordata.** Gray, Manual, 78.

V. cordata. Walt. Fl. Car. 219. Spreng. Syst. 1. 797. Reichenb. Icon. Bot. 1. 40, **t. 45, f. 97.** Don, Mill. 1. 324. Dietr. 1. 841.

V. villosa. Walt. Fl. Car. 219. Nutt. Genera, 1. 148. Elliott, 1. 297. Schwein. l. c. 61. Ging. in DC. Prodr. 1. 295. Torrey, Fl. U. S. 252. Spreng. Syst. 1. 798. Le Conte, l. c. 144. Don, Mill. 1. 324. Beck, Bot. 39. Torr. & Gray, Fl. 1. 138. Dietr. 1. 841. Nees, Pl. Wied, 4. Chapman, 33. Wood, Bot. & Fl. 46.

V. sororia. Willd. Enum. 263; Hort. Berol. **t. 72.** Ait. f. Hort. Kew. 2. 44. Pursh, 173 Poir. Suppl. 4. 483. Röm. & Schult. Syst. 5. 355. Spreng. Syst. 1. 797. Reichenb. Icon. Bot. 1. 39, **t. 43. f. 94.** Le Conte, l. c. 142. Don, Mill. 1. 324. Darling. Fl. Cestr. 144. Dietr. 1. 841.

V. barbata. Muhl. Cat. 25.

V. ciliata. Willd.; Röm. & Schult. Syst. 5. 360.

V. cordifolia. Schwein. l. c. 62. Ging. in DC. Prodr. 1. 295.

Var. **palmata.** Gray, Manual, 78.

V. palmata. Linn. Spec. 933. Hill, Veg. Syst. 22, t. **58, f. 1.** Walt. Fl. Car. 218. Willd. Spec. 1. 1159; Enum. 263. Bot. Mag. t. **535.** Michx. Fl. 2. 151. Persoon, 1. 254. Poir. Dict. 8. 625. "Tratt. Archiv. t. **302.**" Pursh, 172. Nutt. Genera, 1. 147. Röm. & Schult. Syst. 5. 350. Elliott, 1. 300. Schwein. l. c. 51. Reichenb. Icon. Bot. 1. 87, t. **41, f. 86.** James, Long's Exped. 2. 333. Bigel. Fl. Bost. 100. Ging. in DC. Prodr. 1. 291. Torrey, Fl. U. S. 250; Ann. Lyc. N. Y. 2. 168; Fl. N. Y. 1. 69. Spreng. Syst. 1. 796. Le Conte, l. c. 139. Hook. Fl. Bor.-Am. 1. 74; Jour. Bot. 1. 193. Don, Mill. 1. 321. Beck, Bot. 38. Spach, Hist. Veg. 5. 507. Darling. Fl. Cestr. 142. Torr. & Gray, Fl. 1. 137. Dietr. 1. 840. Gray, Manual, 1 ed. 45; Pac. R. Rep. 12. 41. Chapman, 33.

V. ranunculifolia. Juss.; Poir. Dict. 8. 626. Röm. & Schult. Syst. 5. 352.

V. heterophylla. Muhl. Cat. 25. Le Conte, l. c. 139. Don, Mill. 1. 321.

V. triloba. Schwein. l. c. 57. Don, Mill. 1. 321.

V. septemloba. Le Conte, l. c. 141. Don, Mill. 1. 320. Torr. & Gray, Fl. 1. 137. Walp. Rep. 1. 217.

V. edulis. Spach, Hist. Veg. 5. 508.

V. delphinifolia. Nutt.; Torr. & Gray, Fl. 1. 136. Walp. Rep. 1. 217. Torrey, Nicol. Rep. 145. Parry, Pl. Minn. 609. Gray, Manual, 78. Porter, Fl. Col. 11.

? *V. pedatifida.* Don, Mill. 1. 320. Walp. Rep. 1. 217.

V. glabella. Nutt.; Torr. & Gray, Fl. 1. 142. Walp. Rep. 1. 218. Cooper, Pac. R. Rep. 6. 56. Boland. Cat. 5. Gray, Proc. Am. Acad. 8. 377. Torrey, Bot. Wilkes, 237.

V. Canadensis, var. *Sitchensis.* Bong. Sitch. 125. Ledeb. Fl. Ross. 1. 254. Miquel, Ann. Mus. Lugd.-Bat. 2. 154.

V. striata. Hook. in Lond. Jour. Bot. 6. 72, not Ait.

V. biflora, var. *Sitchensis.* Regel, Fl. Ost-Sib. 1. 253. Rothr. Alask. 444.

V. Hallii. Gray, Proc. Am. Acad. 8. 377. Brew. & Wats. l. c. 57.

? *V. chrysantha*, var. *glaberrima.* Torrey, Bot. Wilkes, 238.

V. hastata. Michx. Fl. 2. 149. Persoon, 1. 255. Poir. Dict. 8. 635. Pursh, 175. Nutt. Genera, 1. 150. Röm. & Schult. Syst. 5. 371. Elliott, 1. 302. Schwein l. c. 77. Ging. in DC. Prodr. 1. 300. Torrey, Fl. U. S. 257. Spreng. Syst. 1. 801. Le Conte, l. c. 150. Don, Mill. 1. 329. Beck, Bot. 41. Torr. & Gray, Fl. 1. 142. Dietr. 1. 843. Chapman, 34. Lesqx. Fl. Ark. 350. Gray, Manual, 79.

V. tripartita. Elliott; Nutt. Genera, 1. 150. Elliott, 1. 302 (Spreng. Neue Entdeck. 2. 193). Ging. in DC. Prodr. 1. 300. Spreng. Syst. 1. 801. Don, Mill. 1. 329. Torr. & Gray, Fl. 1. 142. Dietr. 1. 844. Wood, Cl.-Book, 243; Fl. & Bot. 46.

V. gibbosa. Raf.; Ging. in DC. Prodr. 1. 305. Don, Mill. 1. 334.

V. lanceolata. Linn. Spec. 934, excl. pl. Gmel. Hill, Veg. Syst. 22, t. **58, f. 4.** Willd. Spec. 1. 1161. Forst. in Trans. Linn. Soc. 6. 310. Michx. Fl. 2. 150. Persoon, 1. 254. Poir. Dict. 8. 630. Pursh, 172. Lodd. Cab. t. **211.** Nutt. Genera, 1. 150. Röm. & Schult. Syst. 5. 354. Elliott, 1. 296. Schwein. l. c. 64. Reichenb. Icon. Bot. 1. 42, t. **52, f. 106.** Ging. in DC. Prodr. 1. 293. Bigel. Fl. Bost. 98. Torrey, Fl. U. S. 253; Fl. N. Y. 1. 72. Sweet, Br. Fl. Gard. t. **174.** Spreng. Syst. 1. 798. Le Conte, l. c. 146. Hook. Fl. Bor.-Am. 1. 76. Don, Mill. 1. 322. Beck, Bot. 39. Torr. & Gray, Fl. 1. 139. Dietr. 1. 842. Chapman, 33. Gray, Manual, 77; Hall's Pl. Tex. 3. Willis, Pl. N. Jer. 7.

V. attenuata. Sweet, Hort. Brit. 37. Don, Mill. 1. 322. Walp. Rep. 1. 217.

V. Langsdorffii. Fisch.; Ging. in DC. Prodr. 1. 296; Linn. 1. 407. Spreng. Syst. 1. 800. Hook. Fl. Bor.-Am. 1. 77. Don, Mill. 1. 325. Torr. & Gray, Fl. 1. 139. Dietr. 1. 843. Eat. & Wr. 477. Ledeb. Fl. Ross. 1. 250. Rothr. Alask. 444. Maxim. Bull. Acad. Petersb. 23. 329 (Mel. Biol. 9. 741).

V. mirabilis, var. *Langsdorffii*. Regel, Fl. Ost-Sib. 1. 240, **t. 6, f. 24–29.**

V. lobata. Benth. Pl. Hartw. 298. Walp. Ann. 2. 66. Durand, Pl. Pratten. 82. Torrey, Pac. R. Rep. 4. 68; Mex. Bound. 35. Boland. Cat. 6. Brew. & Wats. Bot. Calif. 1. 57.

V. Sequoiensis. Kellogg, Proc. Calif. Acad. 2. 185, **f. 55.**

Var. **integrifolia.** Watson, Bot. Calif. 1. 57.

V. Nuttallii. Pursh, 174. Poir. Suppl. 4. 484. Nutt. Genera, 1. 151; Journ. Acad. Philad. 7. 16. Roem. & Schult. Syst. 5. 372. Schwein. l. c. 77. Ging. in DC. Prodr. 1. 300. Spreng. Syst. 1. 801. Le Conte, l. c. 151. Hook. Fl. Bor.-Am. 1. 79, **t. 26**; Lond. Journ. Bot. 6. 73. Don, Mill. 1. 329. Torr. & Gray, Fl. 1. 141. Dietr. 1. 844. Eat. & Wr. 479. Torrey, Nicol. Rep. 146; Bot. Wilkes, 237. Cooper, Pac. R. Rep. 12. 56. Gray, Am. Journ. Sci. 2. 33. 404; Proc. Acad. Philad. 1863, 58; Proc. Am. Acad. 8. 377. Boland. Cat. 5. Watson, King's Rep. 5. 35. Porter, Hayd. Rep. 1871, 478; Fl. Col. 11. Coulter, Hayd. Rep, 1872, 761. Brew. & Wats. l. c. 57.

V. premorsa. Dougl.; Lindl. Bot. Reg. 15, **t. 1254.** Hook. Fl. Bor.-Am. 1. 80. Don, Mill. 1. 329. Torr. & Gray, Fl. 1. 141. Eat. & Wr. 478. Walp. Rep. 1. 218.

V. linguæfolia. Nutt.; Torr. & Gray, Fl. 1. 141. Eat. & Wr. 477. Walp. l. c.

V. pedunculata. Torrey, Stansb. Rep. 383. Durand, Fl. Utah, 160.

V. ocellata. Torr. & Gray, Fl. 1. 142. Hook. & Arn. Bot. Beechey, 325. Walp. Rep. 1. 218. Eat. & Wr. 479. Benth. Pl. Hartw. 298. Torrey, Pac. R. Rep. 4. 68. Mex. Bound. 35. Newberry, Pac. R. Rep. 6. 67. Gray, Proc. Calif. Acad. 3. 101. Boland. Cat. 5. Brew. & Wats. l. c. 56.

V. ODORATA, Linn. Gray, Manual, 77. Brew. & Wats. l. c. 55.]

V. palustris. Linn. Spec. 934. See syn. in Ledeb. Fl. Ross. 1. 247; Regel, Fl. Ost-Sib. 1. 233; Hook. f. Arct. Pl. 286 & 320; Maxim. Bull. Acad. Petersb. 23. 323 (Mel. Biol. 9. 733), with var. *epipsila.* — Schrank, Pfl. Lab. 12. Ging. in DC. Prodr. 1. 294. Meyer, Pl. Lab. 88. Torr. & Gray, Fl. 1. 139. Bigel. Fl. Bost. 3 ed. 102. Eat. & Wr. 477. Lange, Pl. Groenl. 131. Durand, Fl. Utah, 159. Hook. f. in Journ. Linn. Soc. 5. 83. Gray, Am. Journ. Sci. 2. 33. 404; Manual, 78. Watson, King's Rep. 5. 34. Porter, Fl. Col. 11. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 317. Brew. & Wats. l. c.

V. epipsila, Ledeb. Regel, Fl. Ost-Sib. 1. 216 & 233, with syn. Gray, Am. Journ. Sci. 2. 33. 404.

V. pedata. Linn. Spec. 933. Hill, Veg. Syst. 22, **t. 58, f. 2.** Walt. Fl. Car. 219. Bot. Mag. **t. 89.** Willd. Spec. 1. 1160. Andr. Bot. Rep. 3, **t. 153.** Michx. Fl. 2. 153. Persoon, 1. 254. Poir. Dict. 8. 625. Tratt. Archiv. **t. 365, 366.** Pursh, 171. Bigel. Fl. Bost. 60. Nutt. Genera, 1. 147. Barton, Comp. Fl. Phil. 1. 120. Roem. & Schult. Syst. 5. 351. Elliott, 1. 300. Lodd. Cab. **t. 536.** Schwein, l. c. 50. Sweet, Br. Fl. Gard. **t. 69** & 2 ser. **t. 247.** Ging. in DC. Prodr. 1. 291. Torrey, Fl. U. S. 249; Fl. N. Y. 1. 69. Spreng. Syst. 1. 796. Turpin, Dict. Sci. Nat. 58. 231, **t. 188.** Le Conte, l. c. 147. Hook. Fl. Bor.-Am. 1. 74; Journ. Bot. 1. 193. Don, Mill. 1. 320. Beck, Bot. 38. Darling. Fl. Cestr. 142. Torr. & Gray, Fl. 1. 136. Dietr. 1. 840. Eat. & Wr. 477. Parry, Pl. Minn. 609. Chapman, 33. Lesqx. Fl. Ark. 350. Lemaire, Ill. Hort. 14, **t. 520.** Moore, Fl. Mag. 1867, **t. 350.** Gray, Manual, 78. Willis, Pl. N. Jer. 8.

V. digitata. Pursh, 171. Poir. Suppl. 4. 485. Roem. & Schult. Syst. 5. 3
Don, Mill. 1. 320.

V. pinnata. Richards. Frankl. Journ. 6.

V. flabellifolia. Lodd. Cab. t. **777.** Don, Mill. 1. 321.

Var. **bicolor.** Pursh; fide Raf. in DC. Prodr. 1. 291. Gray, Manual, 79. Wc
Bot. & Fl. 46.

V. pedata, var. *atropurpurea.* Ging. in DC. Prodr. 1. 291. Fl. Serres, 1. 1
t. **1361.**

V. pedata, var. Grah. in Edinb. Phil. Journ. Dec. 1833.

V. pedunculata. Torr. & Gray, Fl. 1. 141. Hook. & Arn. Bot. Beechey, 3
Eat. & Wr. 479. Walp. Rep. 1. 218. Benth. Pl. Hartw. 298. Torrey, Pac
Rep. 4. 68, in part, & 7. 8; Mex. Bound. 35. Newberry, Pac. R. Rep. 6. 67. Hc
Bot. Mag. t. **5004.** Gray, Ives' Rep. 7. Lemaire, Ill. Hort. 4, Misc. 88. Bola
Cat. 5. Brew. & Wats. Bot. Calif. 1. 56.

V. primulæfolia. Linn. Spec. 934. Hill, Veg. Syst. 22, t. **58,** f. **5.** Walt.
Car. 219. Willd. Spec. 1. 1162. Persoon, 1. 254. Poir. Dict. 8. 630. Ait. f. H
Kew. 2. 45. Nutt. Genera, 1. 149. Röm. & Schult. Syst. 5. 359. Elliott, 1. 3
Schwein. l. c. 64. Reichenb. Icon. Bot. 1. 89, t. **45,** f. **96.** Ging. in DC. Pr
1. 293. Torrey, Fl. U. S. 254; Fl. N. Y. 1. 72. Spreng. Syst. 1. 798. Le Co
l. c. 145. Don, Mill. 1. 322. Beck, Bot. 39. Hook. Jour. Bot. 1. 193. Darl
Fl. Cestr. 145. Torr. & Gray, Fl. 1. 139. Chapman, 33. Gray, Manual,
Willis, Pl. N. Jer. 7.

V. acuta. Bigel. Fl. Bost. 100. Torrey, Fl. U. S. 253. Spreng. Syst. 4[2].
Don, Mill. 1. 322. Beck, Bot. 39. Dietr. 1. 842.

V. pubescens. Ait. Hort. Kew. 3. 290. Willd. Spec. 1. 1166. Persoon, 1.
Poir. Dict. 8. 637. Pursh, 174. Nutt. Genera, 1. 150. Röm. & Schult. S
5. 376. Schwein. l. c. 74. Reichenb. Icon. Bot. 1. 45 & 92, t. **53,** f. **111.** Ging
DC. Prodr. 1. 301. Bigel. Fl. Bost. 103. Torrey, Fl. U. S. 257; Ann. Lyc. N
2. 168; Fl. N. Y. 1. 74. Spreng. Syst. 1. 800. Le Conte, l. c. 150. Sweet, Br
Gard. t. **223.** Lodd. Cab. t. **1249.** Don, Mill. 1. 330. Beck, Bot. 41. Darl
Fl. Cestr. 147. Torr. & Gray, Fl. 1. 142. Dietr. 1. 843. Nees, Pl. Wiec
Chapman, 34. Gray, Manual, 79. Willis, Pl. N. Jer. 9. Maxim. l. c. 337 (753

V. Pennsylvanica. Michx. Fl. 2. 149. Persoon, 1. 255. Poir. Dict. 8. 634.
Mill. 1. 330.

V. uniflora, Linn., var. *pubescens.* Regel, Fl. Ost-Sib. 1. 254.

Var. **eriocarpa.** Nutt. Genera, 1. 150. Ker, Bot. Reg. 5, t. **390.** Torrey
U. S. 257. Hook. Fl. Bor.-Am. 1. 80. Torr. & Gray, Fl. 1. 142. Gray, Manua

V. eriocarpa. Schwein. l. c. 75 & 8. 268. Ging. in DC. Prodr. 1. 301. Sv
Br. Fl. Gard. t. **102.** Spreng. Syst. 1. 800. Don, Mill. 1. 330. Dietr. 1.
Maxim. l. c.

V. renifolia. Gray, Proc. Am. Acad. 8. 288. Macoun & Gibson, l. c. 316.

V. rostrata. Muhl. Cat. 26. Pursh, 174. Poir. Suppl. 4. 485. Röm. & Sc
Syst. 5. 378. Nutt. Genera, 1. 150. Schwein. l. c. 73. Ging. in DC. Prodr. 1.
Torrey, Fl. U. S. 256; Fl. N. Y. 1. 73. Spreng. Syst. 1. 801. Le Conte, l. c.
Reichenb. Icon. Bot. Exot. 2. 13, t. **131.** Hook. Fl. Bor.-Am. 1. 78. Don,
1. 327. Beck, Bot. 41. Torr. & Gray, Fl. 1. 140. Bigel. Fl. Bost. 103. D
1. 844. Gray, Manual, 79.

V. rotundifolia. Michx. Fl. 2. 150. Persoon, 1. 254. Poir. Dict. 8. 627. 1
Genera, 1. 149. Röm. & Schult. Syst. 5. 358. Elliott, 1. 298. Schwein. l. c
Ging. in DC. Prodr. 1. 295. Bigel. Fl. Bost. 102. Torrey, Fl. U. S. 1. 252;

N. Y. 1. 71. Spreng. Syst. 1. 798. Le Conte, l. c. 146. Reichenb. Icon. Bot. Exot. 2. 9, t. **124**. Hook. Fl. Bor.-Am. 1. 77. Meyer, Pl. Lab. 89. Don, Mill. 1. 324. Beck, Bot. 39. Torr. & Gray, Fl. 1. 138. Dietr. 1. 841. Chapman, 34. Gray, Manual, 77.

V. sagittata. Ait. Hort. Kew. 3. 287. Muhl. Ind. Fl. Lanc. 178. Willd. Spec. 1. 1161. Persoon, 1. 254. Poir. Dict. 1. 629. Pursh, 172. Nutt. Genera, 1. 147. Röm. & Schult. Syst. 5. 352. Elliott, 1. 299. Schwein. l. c. 55. Reichenb. Icon. Bot. 1. 38, t. **42**, f. **88**. Ging. in DC. Prodr. 1. 294. Bigel. Fl. Bost. 101. Torrey, Fl. U. S. 1. 250; Fl. N. Y. 1. 71. Spreng. Syst. 1. 797. Le Conte, l. c. 143. Lodd. Cab. t. **1471**. Don, Mill. 1. 323. Beck, Bot. 38. Darling. Fl. Cestr. 143. Torr. & Gray, Fl. 1. 138. Dietr. 1. 840. Nees, Pl. Wied, 4. Gray, Genera, 1. 186, t. **80**; Struct. Bot. 392, f. **711, 712**^{b}; Manual, 78; Hall's Pl. Tex. 3. Chapman, 33. Willis, Pl. N. Jer. 8.

V. sagittæfolia. Salisb. Prodr. 130.

V. ciliata. Muhl. Cat. 25.

V. primulifolia. Pursh, 173, not Linn.

V. dentata. Pursh, 172. Poir. Suppl. 4. 485. Röm. & Schult. Syst. 5. 353. Lodd. Cab. t. **1485**.

V. ovata. Nutt. Genera, 1. 148. Röm. & Schult. Syst. 5. 359. Schwein. l. c. 58. Ging. in DC. Prodr. 1. 293. Torrey, Fl. U. S. 251. Spreng. Syst. 1. 798. Le Conte, l. c. 143. Hook. Fl. Bor.-Am. 1. 76. Don, Mill. 1. 323. Beck, Bot. 39. Darling. Fl. Cestr. 144. Bigel. Fl. Bost. 101. Dietr. 1. 841.

V. fimbriatula. Smith, Rees Cyc. n. 16.

V. Alleghaniensis. Röm. & Schult. Syst. 5. 560. Ging. in DC. Prodr. 1. 306. Le Conte, l. c. 153. Don, Mill. 1. 334.

V. emarginata. Le Conte, l. c. 142. Don, Mill. 1. 323.

V. sarmentosa. Dougl.; Hook. Fl. Bor.-Am. 1. 80. Torr. & Gray, Fl. 1. 143. Walp. Rep. 1. 218. Benth. Pl. Hartw. 298. Torrey, Pac. R. Rep. 4. 68; Bot. Wilkes, 237. Newberry, Pac. R. Rep. 6. 67. Boland. Cat. 5. Gray, Proc. Am. Acad. 8. 377.

V. rotundifolia ? Hook. Lond. Jour. Bot. 6. 78.

V. Selkirkii. Pursh; Goldie in Edinb. Phil. Jour. 6. 324. Ging. in DC. Prodr. 1. 305. Le Conte, l. c. 153. Hook. Fl. Bor.-Am. 1. 75. Don, Mill. 1. 334. Torr. & Gray, Fl. 1. 137. Walp. Rep. 1. 217. Torrey, Fl. N. Y. 1. 70. Gray, Manual, 78.

V. Kamtschatica. Ging. in Linn. 1. 406, fide Gray in Mem. Am. Acad. 6. 382 & Manual, 78. Regel, Fl. Ost-Sib. 1. 227, t. **6**, f. **7–15**, with syn.

V. Sheltoni. Torrey, Pac. R. Rep. 4. 67, t. **2**. Newberry, same, 6. 67.

V. striata. Ait. Hort. Kew. 3. 290. Muhl. Ind. Fl. Lanc. 178. Willd. Spec. 1. 1166. Persoon, 1. 255. Poir. Dict. 8. 637. Pursh, 174. Nutt. Genera, 1. 150. Röm. & Schult. Syst. 5. 376. Elliott, 1. 301. Schwein. l. c. 76. Reichenb. Icon. Bot. 1. 45, t. **54**, f. **112**. Ging. in DC. Prodr. 1. 297. Spreng. Syst. 1. 800. Le Conte, l. c. 149. Don, Mill. 1. 326. Torr. & Gray, Fl. 1. 139. Dietr. 1. 843. Torrey, Fl. N. Y. 1. 73, t. **8**. Chapman, 34. Gray, Manual, 79. Meehan, Am. Naturalist, 7. 563.

V. debilis. Michx. Fl. 1. 150. Persoon, 1. 255. Poir. Dict. 8. 637. Röm. & Schult. Syst. 5. 372. Le Conte, l. c. 152. Bigel. Fl. Bost. 102.

V. ochroleuca. Schwein. l. c. 69. Ging. in DC. Prodr. 1. 297. Torrey, Fl. U. S. 255. Spreng. Syst. 1. 800. Hook. Fl. Bor.-Am. 1. 77. Don, Mill. 1. 326. Beck, Bot. 40. Darling. Fl. Cestr. 146. Dietr. 1. 843.

V. repens. Schwein. l. c. 69.

V. Lewisiana. Ging. in DC. Prodr. 1. 298. Spreng. Syst. 1. 799. Don, Mill. 1. 326. Dietr. 1. 842.

V. TRICOLOR, Linn. Hook. f. Arct. Pl. 286 & 821. Gray, Manual, 80. Willis, Pl. N. Jer. 9.

Var. ARVENSIS. Ging. in DC. Prodr. 1. 303. Hook. Fl. 1. 81. Torr. & Gray, Fl. 1. 143. Torrey, Fl. N. Y. 1. 75. Chapman, 34. Gray, Manual, 80.

V. bicolor. Pursh, 175. Poir. Suppl. 4. 485. Nutt. Genera, 1. 151. Röm. & Schult. Syst. 5. 383. Schwein. l. c. 78. Spreng. Syst. 1. 803. Don, Mill. 1. 332. Hook. Jour. Bot. 1. 198. Dietr. 1. 845. Considered distinct by Hook. f. (l. c.)

V. tenella. Muhl. Cat. 25. Schwein. l. c. 78. Torrey, Fl. U. S. 1. 257; Ann. Lyc. N. Y. 2. 168. Le Conte, l. c. 151. Beck, Bot. 41.

V. acuta; primulæfolia.
adunca; canina.
affinis; cucullata.
albiflora; Canadensis.
Alleghaniensis; sagittata.
Allionii; canina.
amœna; blanda.
asarifolia; canina, cucullata.
attenuata; lanceolata.
aurea; Nuttallii.
barbata; cucullata.
bicolor; tricolor.
biflora & Canadensis; glabella.
chrysantha; Hallii.
ciliata; cucullata, sagittata.
clandestina; blanda.
concolor; Ionidium concolor.
congener; cucullata.
conspersa; canina.
cordata & cordifolia; cucullata.
debilis; canina, striata.
dentata; sagittata.
digitata; pedata.
Douglasii; chrysantha.
edulis; cucullata.
emarginata; sagittata.
epipsila; palustris.
eriocarpa; pubescens.
fimbriatula; sagittata.
flabellifolia; pedata.
gibbosa; hastata.
heterophylla; cucullata.
Kamtschatica; Selkirkii.
V. Labradorica; canina.
Langsdorffii; mirabilis.
Leconteana; blanda.
Lewisiana; striata.
linguæfolia; Nuttallii.
longipes & Muhlenbergii; canina.
obliqua; blanda, cucullata.
ochroleuca; striata.
ovata; sagittata.
palmata & papilionacea; cucullata.
pedatifida; delphinifolia.
pedunculata; Nuttallii.
Pennsylvanica; pubescens.
pinnata; pedata.
præmorsa; Nuttallii.
primulifolia; sagittata.
punctata; canina.
purpurea; aurea.
radicans; canina.
ranunculifolia; cucullata.
repens: striata.
rotundifolia; sarmentosa.
sagittæfolia; sagittata.
septemloba & sororia; cucullata.
Sequoiensis; lobata.
striata; glabella.
tenella; tricolor.
triloba; cucullata.
tripartita; hastata.
uliginosa; canina.
uniflora; pubescens.
villosa; cucullata.

CANELLACEÆ.

CANELLA alba. Murray, Linn. Syst. 4. 443. See Miers, Contrib. Bot. 1. 116; Griseb. Fl. W. Ind. 109. — Chapman, 43.

BIXINEÆ.

AMOREUXIA malvæfolia. Gray, Pl. Wright. 1. 29. — (Northern Mexico.)

A. Schiedeana. Planch. in Lond. Jour. Bot. 6. 140 & 306, t. 1. Gray, Pl. Wright. 2. 26, t. 12, f. A; Pl. Thurb. 305. Torrey, Mex. Bound. 44.

? *A. palmatifida.* DC. Prodr. 2. 638.

Euryanthe Schiedeana. Cham. & Schlecht. in Linn. 5. 225.

A. Wrightii. Gray, Pl. Wright. 2. 26; Proc. Am. Acad. 5. 176. Torrey, Mex. Bound. 44.

A. Schiedeana. Gray, Pl. Wright. 1. 29, t. 3, f. B, excl. syn.

FLACOURTIA racemosa. Presl, Rel. Haenk. 2. 93. Walp. Rep. 1. 205. Attributed to California, but without doubt erroneously.

POLYGALACEÆ.

KRAMERIA canescens. Gray, Pl. Wright. 1. 42 & 2. 32, not Willd. (Röm. & Schult. Syst. 3, Mant. 303; Berg, Bot. Zeit. 14. 766). Torrey, Pac. R. Rep. 7. 9; Mex. Bound. 49, t. 13. Walp. Ann. 4. 240.

K. lanceolata. Torrey, Ann. Lyc. N. Y. 2. 168. Don, Mill. 1. 371. Torr. & Gray, Fl. 1. 134 & 671; Pac. R. Rep. 2. 162. Eat. & Wr. 201. Dietr. Syn. 3. 627. Engelm. Wisliz. Rep. 4. Engelm. & Gray, Pl. Lindh. 4. Gray, same, 151; Genera, 2. 228, t. 185, 186; Pl. Wright. 1. 43 & 2. 32; Pl. Thurb. 300; Hall's Pl. Tex. 5. Scheele, Röm. Texas, 435. Torrey, Marcy's Rep. 283; Pac. R. Rep. 4. 76 & 7. 9; Mex. Bound. 49. Chapman, 86. Schnizl. Icon. t. 233. Wood, Bot. & Fl. 80. Young, Fl. Texas, 211.

? *K. secundiflora.* DC. Prodr. 1. 341. Benth. Pl. Hartw. 345. Berg, Bot. Zeit. 14. 752 & 797.

? *K. pauciflora.* DC. Prodr. 1. 341. Gray, Pl. Wright. 1. 43. Berg, l. c. 751.

? *K. ixina.* Benth. Pl. Hartw. 13. Referred to *K. pauciflora* by Berg, l. c.

K. parvifolia. Benth. Bot. Sulph. 6, t. 1. Walp. Rep. 5. 67. Torrey, Frem. Rep. 312 (Bot. Zeit. 5. 40); Mex. Bound. 49. Gray, Pl. Wright. 1. 41 & 2. 32. Berg, Bot. Zeit. 14. 766. Watson, King's Rep. 5. 416; Pl. Wheel. 6.

Var. **ramosissima.** Gray, ll. cc. Torrey, Mex. Bound. 49.

MONNINA Wrightii. Gray, Pl. Wright. 2. 31. Walp. Ann. 4. 239. Torrey, Mex. Bound. 49.

POLYGALA alba. Nutt. Genera, 2. 87. James, Cat. 186. DC. Prodr. 1. 330. Torrey, Ann. Lyc. N. Y. 2. 168; Nicol. Rep. 145; Frem. Rep. 87; Marcy's Rep. 282; Mex. Bound. 48. Spreng. Syst. 3. 168. Don, Mill. 1. 358. Torr. & Gray, Fl. 1. 131; Pac. R. Rep. 2. 126 & 162. Eat. & Wr. 366. Nees, Pl. Wied, 4. Engelm. & Gray, Pl. Lindh. 33. Hook. Lond. Jour. Bot. 6. 72. Engelm. Wisliz. Rep. 4; Pl. Upp. Miss. 188. Gray, Pl. Fendl. 30; Pl. Wright. 1. 38 & 2. 30; Pac. R. Rep. 12. 41; Ives's Rep. 9. Chapman, 85. Wood, Bot. & Fl. 79. Young, Fl. Tex. 210.

P. Senega, var. *tenuifolia.* Pursh, 750.

P. bicolor. HBK. Nov. Gen. 5. 394, t. 507. DC. Prodr. 1. 327. Spreng. Syst. 3. 168. Dietr. 4. 898. Seem. Bot. Herald, 269, including numerous species.

P. —— n. sp. ? Torrey, Ann. Lyc. N. Y. 2. 168.

P. Torreyi. Don, Mill. 1. 360.

P. Beyrichii. Torr. & Gray, Fl. 1. 130. Eat. & Wr. 367. Walp. Rep. 1. 237. Dietr. 4. 899.

P. scoparia. Benth. Pl. Hartw. 8, not HBK.

P. aparinoides. Hook. & Arn. Bot. Beechey, 277, fide Seemann, l. c.

P. ambigua. Nutt. Genera, 2. 89. Barton, Fl. Phil. 2. 70. DC. Prodr. 1. 329. Spreng. Syst. 3. 169. Torrey, Compend. 261; Fl. N. Y. 1. 151. Don, Mill. 1. 357. Beck, Bot. 45. Eat. & Wr. 366. Darling. Fl. Cestr. 402. Gray, Manual, 122.

P. Baldwinii. Nutt. Genera, 2. 90. DC. Prodr. 1. 329. Elliott, 2. 187. Spreng. Syst. 3. 171. Don, Mill. 1. 358. Torr. & Gray, Fl. 1. 128. Eat. & Wr. 366. Dietr. 4. 898. Chapman, 83.

P. Boykinii. Nutt. in Jour. Acad. Philad. 7. 86. Torr. & Gray, Fl. 1. 131 & 670. Eat. & Wr. 366. Walp. Rep. 1. 237. Chapman, 84. Wood, Cl.-Book, 296; Bot. & Fl. 80.

P. bicolor. Hook. Jour. Bot 1. 194. Torr. & Gray, Fl. 1. 130. Eat. & Wr. 366.

P. brevifolia. Nutt. Genera, 2. 89. DC. Prodr. 1. 328. Torrey, Compend. 260. Spreng. Syst. 3. 169. Don, Mill. 1. 355. Beck, Bot. 44. Chapman, 84. Gray, Manual, 122.

P. cruciata. Torr. & Gray, Fl. 1. 127, in part.

P. Chapmanii. Torr. & Gray, Fl. 1. 131. Eat. & Wr. 367. Walp. Rep. 1. 237. Chapman, 83. Wood, Cl.-Book. 295; Bot. & Fl. 79.

P. cruciata. Linn. Spec. 706. Hill, Veg. Syst. 22, **t. 53, f. 4.** Willd. Spec. 2. 897. Michx. Fl. 2. 52. Poir. Dict. 5. 502. Ait. f. Hort. Kew. 4. 247. Nutt. Genera, 2. 89. Elliott, 2. 183. Bigel. Fl. Bost. 284. DC. Prodr. 1. 328. Torrey, Compend. 261; Fl. N. Y. 1. 150. Spreng. Syst. 3. 169. Hook. Fl. Bor.-Am. 1. 85. Don, Mill. 1. 355. Beck, Bot. 44. Torr. & Gray, Fl. 1. 127 & 670. Eat. & Wr. 366. Dietr. 4. 898. Gray, Genera, 2. 223, **t. 183, f. 12, 13** (seed); Manual, 121. Chapman, 84. Wood, Bot. & Fl. 80.

P. cuspidata. Hook. Jour. Bot. 1. 194, not DC.

P. cymosa. Walter, 179. Torr. & Gray, Fl. 1. 128 & 670. Eat. & Wr. 366. Dietr. 4. 598. Gray, Pl. Wright. 1. 41; Manual, 120. Walp. Ann. 4. 238. Chapman, 82. Wood, Cl.-Book, 296.

P. corymbosa. Michx. Fl. 2. 54, in part. Elliott, 2. 187. DC. Prodr. 1. 329. Spreng. Syst. 3. 171. Don, Mill. 1. 358. Hook. Jour. Bot. 1. 195. Dietr. 4. 898.

P. graminifolia. Poir. Dict. 5. 500. DC. Prodr. 1. 329. Don, Mill. 1. 358.

P. attenuata. Nutt. Genera, 2. 90. Spreng. Syst. 3. 171.

P. acutifolia. Torr. & Gray, Fl. 1. 128. Eat. & Wr. 366. Walp. Rep. 1. 237. Dietr. 4. 898.

P. Curtissii. Gray, Manual, 121.

P. fastigiata. Nutt. Genera, 2. 89. DC. Prodr. 1. 328. Torrey, Compend. 261. Don, Mill. 1. 356. Beck, Bot. 44. Hook. Jour. Bot. 1. 194. Walp. Ann. 3. 827. Chapman, 83. Lesqx. Fl. Ark. 355. Gray, Manual, 121.

P. sanguinea. Torr. & Gray, Fl. 1. 126, excl. syn. Eat. & Wr. 366.

P. grandiflora. Walter, 179. Torr. & Gray, Fl. 1. 132 & 670. Eat. & Wr. 367. Gray, Pl. Wright. 1. 41. Chapman, 84. Wood, Cl.-Book, 294; Bot. & Fl. 79.

P. Senega, var. *rosea.* Michx. Fl. 2. 53. Pursh, 465.

P. pubescens. Muhl. Cat. 66. Nutt. Genera, 2. 87. Elliott, 2. 180. DC. Prodr. 1. 330. Spreng. Syst. 3. 169. Don, Mill. 1. 360. Hook. Jour. Bot. 1. 195.

P. Senega. St. Hil. & Moq. in Mem. Mus. 17, **t. 27, f. 17** & **t. 28, f. 10.**

P. Muhlenbergii. Don, Mill. 1. 358.

P. hemipterocarpa. Gray, Pl. Wright. 2. 31. Walp. Ann. 4. 238. Torrey, Mex. Bound. 49.

P. Hookeri. Torr. & Gray, Fl. 1. 671. Chapman, 84. Wood, Bot. & Fl. 80.

P. attenuata. Hook. Jour. Bot. 1. 195, not Nutt. Torr. & Gray, Fl. 1. 133. Eat. & Wr. 367. Walp. Rep. 1. 237. Dietr. 4. 899.

P. incarnata. Linn. Spec. 701, excl. Pluk. Ic. Hill, Veg. Syst. 22, **t. 51, f. 1.** Willd. Spec. 3. 871. Michx. Fl. 2. 52. Poir. Dict. 5. 490. Pursh, 464. James, Long's Exped. 1. 63. Elliott, 2. 185. DC. Prodr. 1. 327. Spreng. Syst. 3. 169. Hook. Fl. Bor.-Am. 1. 84; Jour. Bot. 1. 194. Don, Mill. 1. 355. Beck, Bot. 44. Torr. & Gray, Fl. 1. 129. Eat. & Wr. 395. Dietr. 4. 898. Engelm. & Gray, Pl. Lindh. 3. Scheele, Röm. Texas, 436. Seem. Bot. Herald, 269. Parry, Pl. Minn. 610. Torrey, Marcy's Rep. 283. Bertol. Bot. Misc. 15. 20. Chapman, 84. Gray, Manual, 121; Hall's Pl. Tex. 5.

P. leptocaulis. Torr. & Gray, Fl. 1. 130. Eat. & Wr. 366. Walp. Rep. 1. 237. Dietr. 4. 898. Engelm. & Gray, Pl. Lindh. 3. Gray, Hall's Pl. Tex. 5.

P. leptostachys. Shuttl.; Gray, Pl. Wright. 1. 41. Chapman, 84. Wood, Bot. & Fl. 80.

P. Lindheimeri. Gray, Pl. Lindh. 150; Pl. Wright. 1. 39 & 2. 30; Hall's Pl. Tex. 5. Walp. Ann. 2. 80. Torrey, Pac. R. Rep. 4. 76; Mex. Bound. 48.

P. lutea. Linn. Spec. 705. Hill, Veg. Syst. 22, **t. 52, f. 2.** Willd. Spec. 2. 894. Michx. Fl. 2. 54, in part. Poir. Dict. 5. 501. Ait. f. Hort. Kew. 4. 246. Nutt. Genera, 2. 88. Elliott, 2. 185. DC. Prodr. 1. 328. Torrey, Compend. 260. Spreng. Syst. 3. 170. Don, Mill. 1. 356. Beck, Bot. 45. Hook Jour. Bot. 1. 194. Torr. & Gray, Fl. 1. 127. Eat. & Wr. 366. Dietr. 4. 898. Gray, Pl. Wright. 1. 41; Manual, 120. Chapman, 83. Lesqx. Fl. Ark. 355.

P. Pseudo-senega. Bertol. Bot. Misc. 15. 21, **t. 3, f. 2** (Bot. Zeit. 14. 784), fide Gray in Am. Jour. Sci. 2. 24. 287.

P. macradenia. Gray, Pl. Wright. 1. 39 & 2. 30. Torr. & Gray, Pac. R. Rep. 2. 162. Walp. Ann. 4. 238. Torrey, Mex. Bound. 49.

P. nana. DC. Prodr. 1. 328. Don, Mill. 1. 356. Hook. Jour. Bot. 1. 194. Torr. & Gray, Fl. 1. 127. Dietr. 4. 898. Gray, Pl. Wright. 1. 41. Chapman, 83. Wood, Cl.-Book, 296; Bot. & Fl. 79.

P. lutea, var. *nana.* Michx. Fl. 2. 54.

P. viridescens. Walter, 178? Nutt. Genera, 2. 85; not Linn. Elliott, 2. 186. Spreng. Syst. 3. 170. Eat. & Wr. 366.

P. Nuttallii. Torr. & Gray, Fl. 1. 670, excl. syn. Chapman, 83. Gray, Manual, 121. Buchan, Canad. Naturalist, 14. 293. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 320.

P. sanguinea. Nutt. Genera, 2. 88. Barton, Comp. Fl. Phil. 2. 70. Elliott, 2. 184. Torrey, Compend. 260. Beck, Bot. 45.

P. ambigua. Torr. & Gray, Fl. 1. 130; not Nutt. Dietr. 4. 898.

? *P. linifolia.* Scheele, Linn. 17. 335. Walp. Rep. 5. 63.

P. ovalifolia. DC. Prodr. 1. 331. Gray, Pl. Lindh. 151. Referred to *P. Americana*, Mill., by Seemann, Bot. Herald, 270, with numerous other species.

P. Nutkana. Moç. & Sesse, Icon. Ined. **t. 29.** DC. Prodr. 1. 330. Spreng. Syst. 3. 170. Don, Mill. 1. 360. Torr. & Gray, Fl. 1. 133 & 671. Eat. & Wr. 366.

P. ovatifolia. Gray, Pl. Wright. 1. 39 & 2. 30. Walp. Ann. 4. 237. Torrey, Mex. Bound. 48.

P. paniculata. Linn. Amœn. 5. 402. Swartz, Obs. 272, t. **6**, f. **2**. Seem. Bot. Herald, 269. (2138 Berl.)

P. paucifolia. Willd. Spec. 3. 880. Pursh, 464. Poir. Suppl. 4. 476. Nutt. Genera, 2. 87. Barton, Fl. N. Am. 2. 59, t. **56**. Richards. Frankl. Journ. 16. Elliott, 2. 180. DC. Prodr. 1. 331. Bigel. Fl. Bost. 284. Torrey, Compend. 260; Fl. N. Y. 1. 152. Spreng. Syst. 3. 166. Grah. in Edinb. Phil. Jour. 1828, 175. Hook. Bot. Mag. t. **2852**; Fl. Bor.-Am. 1. 86. Raf. Med. Bot. 1. 63, f. **75**. Don, Mill. 1. 361. Beck, Bot. 46. Torr. & Gray, Fl. 1. 132. Eat. & Wr. 365. Dietr. 4. 899. Gray, Genera, 2. 224, t. **184**; Struct. Bot. 411, f. **789–795**; Manual, 122. Chapman, 84. Matthew, Fl. Acad. 16. Verlot, Pl. Alp. 230, t. **17**.

P. uniflora. Michx. Fl. 2. 53. Poir. Dict. 5. 501. Pursh, 464. DC. Prodr. 1. 331. Spreng. Syst. 3. 171. Hook. Fl. Bor.-Am. 1. 87. Don, Mill. 1. 361. Beck, Bot. 46.

P. purpurea. Ait. f. Hort. Kew. 4. 244.

Triclisperma grandiflora. Raf. Specch. 1. 117.

P. polygama. Walter, 179. Poir. Dict. 5. 500. Nutt. Genera, 2. 75. Elliott, 2. 181. DC. Prodr. 1. 330. Torrey, Compend. 260; Fl. N. Y. 1. 152. Hook. Fl. Bor.-Am. 1. 86, t. **29**; Jour. Bot. 1. 195. Don, Mill. 1. 359. Beck, Bot. 45. Torr. & Gray, Fl. 1. 132. Eat. & Wr. 365. Dietr. 4. 899. Chapman, 84. Gray, Manual, 122; Hall's Pl. Tex. 5.

P. rubella. Willd. Spec. 3. 875. Pursh, 464. Poir. Suppl. 4. 475. DC. Prodr. 1. 330. Bigel. Fl. Bost. 282; Med. Bot. 3. 129, t. **54**. Spreng. Syst. 3. 168. Don, Mill. 1. 358. Lindl. Fl. Med. 126.

P. puberula. Gray, Pl. Wright. 1. 40 & 2. 30; Proc. Am. Acad. 5. 154. Walp. Ann. 4. 238. Torrey, Mex. Bound. 48. Referred to *P. Americana* by Seemann, Bot. Herald, 270.

P. pubescens. Schlecht. in Linn. 14. 160.

P. ramosa. Elliott, 2. 186. Beck, Bot. 46. Hook. Jour. Bot. 1. 195. Gray, Pl. Wright. 1. 41; Manual, 120. Chapman, 82.

P. cymosa. Poir. Dict. 5. 500; not Walt.

P. corymbosa. Nutt. Genera, 2. 89; not Michx. Torrey, Compend. 261. Torr. & Gray, Fl. 1. 128. Eat. & Wr. 366.

P. Rugelii. Shuttleworth; Chapman, Coult. Bot. Gazette, 3. 4.

P. sanguinea. Linn. Spec. 705. Hill, Veg. Syst. 22, t. **53**, f. **2**. Willd. Spec. 2. 896. Michx. Fl. 2. 52. Poir. Dict. 5. 502. Ait. f. Hort. Kew. 4. 247. Pursh, 465. Barton, Fl. N. Am. 2, t. **46**. Bigel. Fl. Bost. 282. DC. Prodr. 1. 328. Don, Mill. 1. 356. Torrey, Fl. N. Y. 1. 149. Dietr. 4. 898. Gray, Pl. Fendl. 30; Manual, 121. Chapman, 83.

P. purpurea. Nutt. Genera, 2. 88, not Ait. Barton, Fl. N. Am. 2. 33, t. **47**. Elliott, 2. 184. DC. Prodr. 1. 328. Torrey, Compend. 260. Spreng. Syst. 3. 170. Don, Mill. 1. 356. Beck, Bot. 44. Darling. Fl. Cestr. 401. Torr. & Gray, Fl. 1. 127. Eat. & Wr. 366. Dietr. 4. 898. Parry, Pl. Minn. 610.

P. viridescens. Linn. Spec. 705, excl. syn. Gron. Hill, Veg. Syst. 22, t. **52**, f. **3**. Willd. Spec. 2. 895. Poir. Dict. 5. 502. Pursh, 465.

P. scoparia. HBK. Nov. Gen. 5. 399. DC. Prodr. 1. 329. Spreng. Syst. 3. 168. Seem. Bot. Herald, 269.

P. spinescens. Gillies, in Hook. Bot. Misc. 3. 146, fide Seemann, l. c.

Var. **multicaulis.** Gray, Pl. Wright. 1. 38 & 2. 30. Torrey, Mex. Bound. 48.

P. Senega. Linn. Spec. 704. Hill, Veg. Syst. 22, t. **52**, f. **1.** Ait. Hort. Kew. 3. 6. Walter, 178. Willd. Spec. 2. 894. Michx. Fl. 2. 53, in part. Poir. Dict. 5. 499, in part. Nouv. Duham. 3. 167. Sims, Bot. Mag. t. **1051.** Pursh, 465, in part. Bigel. Med. Bot. 2. 97, t. **30**; Fl. Bost. 283. Richards. Frankl. Journ. 16. Elliott, 2. 182. DC. Prodr. 1. 330. Spreng. Syst. 3. 170. Torrey, Compend. 260; Fl. N. Y. 1. 151; Nicol. Rep. 145. Lodd. Cab. t. **1380.** Hook. Fl. Bor.-Am. 1. 85. Don, Mill. 1. 359. Woodv. Med. Bot. 3. 452, t. **162.** Beck, Bot. 45. Darling. Fl. Cestr. 403. Lindl. Fl. Med. 125. Torr. & Gray, Fl. 1. 131. Eat. & Wr. 366. Gray, Genera, 2. 223, t. **183**; Manual, 122. Parry, Pl. Minn. 610. Burnett, Encyc. Pl. t. **180.** Engelm. Pl. Upp. Miss. 188. Chapman, 84. Hook. f. Arct. Pl. 283.

Senega officinalis. Spach, Hist. Veg. 7. 129.

P. setacea. Michx. Fl. 2. 52. Poir. Dict. 5. 503. Elliott, 2. 183. DC. Prodr. 1. 328. Spreng. Syst. 3. 170. Don, Mill. 1. 356. Torr. & Gray, Fl. 1. 129. Eat. & Wr. 366. Dietr. 4. 898. Chapman, 68. Wood, Cl.-Book, 295; Bot. & Fl. 79.

P. subspinosa. Watson, Am. Naturalist, 7. 299.

P. verticillata. Linn. Spec. 706. Hill, Veg. Syst. 22, t. **53**, f. **3.** Willd. Spec. 2. 897. Michx. Fl. 2. 53. Poir. Dict. 5. 503. Ait. f. Hort. Kew. 4. 247. Nutt. Genera, 2. 88. Elliott, 2. 182. Bigel. Fl. Bost. 284. DC. Prodr. 1. 329. Torrey, Compend. 261; Fl. N. Y. 1. 150; Nicol. Rep. 145. Spreng. Syst. 3. 169. Hook. Fl. Bor.-Am. 1. 85; Jour. Bot. 1. 195. Don, Mill. 1. 357. Beck, Bot. 45. Darling. Fl. Cestr. 402. Torr. & Gray, Fl. 1. 130. Eat. & Wr. 366. Dietr. 4. 898. Parry, Pl. Minn. 610. Seem. Bot. Herald, 269 (including *P. galioides*, Poir., *ambigua*, Nutt., & *leptocaulis*, Torr. & Gray). Engelm. Pl. Upp. Miss. 188. Chapman, 84. Gray, Manual, 122; Hall's Pl. Tex. 5. Porter, Fl. Col. 19.

P. Xanti. Gray, Proc. Am. Acad. 5. 153. (Lower California.)

P. acutifolia; cymosa.
ambigua; Nuttallii.
Americana; ovalifolia, puberula.
aparinoides; alba.
attenuata; cymosa, Hookeri.
Beyrichii; alba.
bicolor; alba, Boykinii.
cornuta; Nutkana.
corymbosa; cymosa, ramosa.
cruciata; brevifolia.
cucullata; Nutkana.
cuspidata; cruciata.
cymosa; ramosa.
galioides; verticillata.
graminifolia; cymosa.
linifolia; Nuttallii.
P. lutea; nana.
Muhlenbergii; grandiflora.
ovatifolia; ovalifolia.
Pseudo-senega; lutea.
pubescens; grandiflora, puberula.
purpurea; paucifolia, sanguinea.
rubella; polygama.
sanguinea; fastigiata, Nuttallii.
scoparia; alba.
Senega; alba, grandiflora
spinescens; scoparia.
Torreyi; alba.
uniflora; paucifolia.
viridescens; nana, sanguinea.
—— *?;* alba.

FRANKENIACEÆ.

FRANKENIA grandifolia. Cham. & Schlecht. in Linn. 1. 35. Schult. Syst. 7. 70 & 1619. Don, Mill. 1. 376. Presl, Rel. Haenk. 2. 3. Hook. & Arn. Bot. Beechey, 135. Torr. & Gray, Fl. 1. 168. Eat. & Wr. 246. Dietr. 2. 1070. Walp.

Rep. 1. 259. Benth. Bot. Sulph. 7. Torrey, Pac. R. Rep. 4. 76; Mex. Bound. 36, **t. 5**; Bot. Wilkes, 240. Newberry, Pac. R. Rep. 6. 70. Gray, Ives's Rep. 7. Kellogg, Proc. Calif. Acad. 1. 3. Boland. Cat. 8. Watson, Pl. Wheel. 6.

Velezia latifolia. Esch. in Mem. Acad. Petr. 10. 286 (Linn. Litt.-Ber. 1828, 149). Dietr. 2. 924.

F. latifolia. Presl, Rel. Haenk. 2. 3. Schult. Syst. 7. 1620. Dietr. 2. 1070.

F. Jamesii. Torrey; Gray, Proc. Am. Acad. 8. 622. Porter, Fl. Col. 12.

CARYOPHYLLACEÆ.

ALSINE; see under *Arenaria.*
Drummondii; Stellaria Nuttallii.
glabra; Arenaria Grœnlandica.
macropetala; Stellaria macropetala.
media; Stellaria media.
Mexicana; Arenaria verna.
A. microsperma; Arenaria Pitcheri.
nardifolia; Arenaria capillaris.
Nuttallii; Stellaria Nuttallii.
Rossii; Arenaria stricta.
rubella; Arenaria verna.
Wulteri; Stellaria uniflora.

ARENARIA aculeata. Watson, King's Rep. 5. 40.

A. arctica. Stev.; DC. Prodr. 1. 404. See syn. in Fenzl, Ledeb. Fl. Ross. 1. 355 & Regel, Fl. Ost-Sib. 1. 338 & 346 (under *Alsine*); Hook. f. Arct. Pl. 287 & 322. — Cham. & Schlecht. in Linn. 1. 54. Hook. Fl. Bor.-Am. 1. 100 (excl. var. γ.), **t. 34, f. A.** Meyer, Pl. Lab. 92. Torr. & Gray, Fl. 1. 181, in part. Hook. & Arn. Bot. Beechey, 122. Seem. Bot. Herald, 26. Rothr. Alask. 444.

A. laricifolia. Pursh, 319, not Linn. Cham. & Schlecht. l. c. Hook. Fl. Bor.-Am. 1. 98. Torr. & Gray, Fl. 1. 179. Eat. & Wr. 132.

Var. **breviscapa.** Regel, Fl. Ost-Sib. 1. 347.

A. arctica, var. *β. grandiflora.* Hook. Fl. Bor.-Am. 1. 100, **t. 34, f. B.** Torr. & Gray, Fl. 1. 181. Durand, Pl. Kane, 188.

Var. (?) **cæspitosa.**

A. laricifolia, var. *cæspitosa.* Torrey, Bot. Wilkes, 244.

A. Benthamii. Fenzl; Torr. & Gray, Fl. 1. 675. Dietr. 2. 1562. Gray, Pl. Wright. 2. 18; Hall's Pl. Tex. 5. Torrey, Mex. Bound. 36.

A. monticola. Buckl. Proc. Acad. Philad. 1861, 449; fide Gray, same, 1862, 161.

A. biflora, not Linn. For syn. see (under *Alsine*) Fenzl, Ledeb. Fl. Ross. 1. 355; Regel, Fl. Ost-Sib. 1. 338 & 348. Referred to *A. arctica* by Hook. f. Arct. Pl. 322.

Alsine biflora, Wahl. Greville, Mem. Soc. Wern. 3. 429. Lange, Pl. Grönl. 132.

Var. **carnosula.**

Alsine biflora, var. *carnosula*, Fenzl. Regel, Fl. Ost-Sib. 1. 349. Gray, Proc. Acad. Philad. 1863, 59.

Arenaria alpina. Porter, Fl. Col 14. Rothr. Pl. Wheel. 35.

Var. **obtusa.**

A. thymifolia. James, Cat. 181.

A. obtusa. Torrey, Ann. Lyc. N. Y. 2. 170. Don, Mill. 1. 433. Eat. & Wr. 133. Dietr. 2. 1558.

A. arctica, var. *stenopetala.* Hook. Fl. Bor.-Am. 1. 100.

A. arctica, var. γ. (*obtusa*). Torr. & Gray, Fl. 1. 181. Gray, Am. Jour. Sci. 2. 33. 405; Proc. Acad. Philad. 1863, 59. Watson, King's Rep. 5. 41. Porter, Fl. Col. 14. Rothr. Pl. Wheel. 35.

A. arctica. Porter, Hayd. Rep. 1870, 473; 1871, 479. Coulter, same, 762.

A. brevifolia. Nutt.; Torr. & Gray, Fl. 1. 180. Eat. & Wr. 134. Dietr. 2. 1561. Wood, Bot. & Fl. 56.

Alsine brevifolia. Chapman, 49. Wood, Cl.-Book, 260.

A. Californica. Brewer; Boland, Cat. 6.

A. brevifolia, var. (?) *Californica.* Gray, Proc. Calif. Acad. 3. 101.

A. capillaris. Poir. Dict. 6. 380. See syn. in Ledeb. Fl. Ross. 1. 367 (& 366, under *A. formosa* & *lychnidea*); Regel, Fl. Ost-Sib. 1. 366.

Var. **nardifolia.** Regel, l. c. 372.

A. nardifolia, Ledeb. Fl. Alt. 2. 166; Icon. Fl. Ross. **t. 6.** Hook. Fl. Bor.-Am. 1. 98, **t. 32.** Don, Mill. 1. 432. Torr. & Gray, Fl. 1. 178 & 674. Eat. & Wr. 133. Dietr. 2. 1557. Gray, Ives's Rep. 7.

A. formosa. Hook. f. Arct. Pl. 287 & 322. Watson, King's Rep. 5. 30; Pl. Wheel. 6. Torrey, Bot. Wilkes, 243.

Alsine nardifolia. Anderson, Cat. 118.

A. ciliata. Linn. Spec. 425. See syn. in DC. Prodr. 1. 411; Fenzl, Ledeb. Fl. Ross. 1. 370. — Hook. Trans. Linn. Soc. 14. 308. Torr. & Gray, Fl. 1. 182. Eat. & Wr. 133. Hook. f. Arct. Pl. 287.

Var. **humifusa.** Hornem.; Lange, Pl. Groenl. 132.

A. congesta. Nutt.; Torr. & Gray, Fl. 1. 178. Eat. & Wr. 132. Dietr. 2. 1558. Torrey, Frem. Rep. 87; Bot. Wilkes, 243. Hook. in Lond. Journ. Bot. 6. 74. Anderson, Cat. 118. Porter, Hayd. Rep. 1870, 473; 1871, 479; Fl. Col. 13. Watson, King's Rep. 5. 39. Coulter, Hayd. Rep. 1872, 762. Brew. & Wats. Bot. Calif. 1. 69.

Brewerina suffrutescens. Gray, Proc. Am. Acad. 8. 620.

A. Douglasii. Torr. & Gray, Fl. 1. 674. Durand, Pl. Pratten. 83. Boland. Cat. 6. Brew. & Wats. l. c.

A. verna, var. *β.* Hook. & Arn. Bot. Beechey, 325.

Alsine Douglasii. Fenzl; fide Torr. & Gray, l. c. Benth. Pl. Hartw. 290. Torrey, Pac. R. Rep. 4. 69; Mex. Bound. 36.

Greniera Douglasii. Gay, Ann. Sci. Nat. 3. 4. 27.

A. fasciculata. Pursh, 310. Hook. Fl. Bor.-Am. 1. 101. Torr. & Gray, Fl. 1. 182. Eat. & Wr. 132. To be excluded; not American.

A. Fendleri. Gray, Pl. Fendl. 13; Ives's Rep. 7; Am. Jour. Sci. 2. 33, 405; Proc. Acad. Philad. 1863, 59. Walp. Ann. 2. 94. Torr. & Gray, Pac. R. Rep. 2. 126. Torrey, same, 4. 69. Porter, Hayd. Rep. 1870, 473; 1871, 479; Fl. Col. 13. Watson, King's Rep. 5. 40 & 417. Rothr. Pl. Wheel. 35.

Var. **glabrescens.** Watson, King's Rep. 5. 40.

Var. **diffusa.** Porter, Fl. Col. 13.

A. Franklinii. Dougl.; Hook. Fl. Bor.-Am. 1. 101, **t. 35.** Don, Mill. 1. 436. Torr. & Gray, Fl. 1. 178. Hook. & Arn. Bot. Beechey, 326. Eat. & Wr. 133. Dietr. 2. 1560. Engelm. Pl. Upp. Miss. 133. Torrey, Bot. Wilkes, 244.

Var. **minor.** Hook. & Arn. l. c.

A. Hookeri. Nutt.; Torr. & Gray, Fl. 1. 178. Eat. & Wr. 133. Dietr. 2. 1558. Hook. in Lond. Jour. Bot. 6. 74.

A. glabra. Michx. Fl. 1. 274. Poir. Dict. 6. 370. Pursh, 318. DC. Prodr. 1. 407. Spreng. Syst. 2. 399. Don, Mill. 1. 436. Beck, Bot. 52. Torr. & Gray, Fl. 1. 180. Eat. & Wr. 132. Dietr. 2. 1560. Gray, Manual, 91.

Alsine glabra. Fenzl, Ann. Wein. Mus., in part. Gray, Manual, 2 ed. 58. Chapman, 49.

A. Grœnlandica. Spreng. Syst. 2. 402. Meyer, Pl. Lab. 92. Torr. & Gray, Fl. 1. 180. Eat. & Wr. 133. Torrey, Fl. N. Y. 1. 95, t. **15.** Durand, Pl. Kane, 188. Lange, Pl. Grönl. 132. Hook. f. Arct. Pl. 287 & 322. Gray, Manual, 91.

Stellaria Grœnlandica. Retz. Fl. Scand. 2 ed. 107. Willd. Spec. 2. 715. Vahl, Act. Hafn. 4^2. 170; Fl. Dan. 7, t. **1210.** Poir. Dict. 7. 421. DC. Prodr. 1. 398. Don, Mill. 1. 430. Dietr. 2. 1555.

? *Stellaria Labradorica.* Schrank, Pfl. Lab. 24. Meyer, Pl. Lab. 93.

Arenaria glabra. Torrey, Fl. U. S. 455, not Michx. Bigel. Fl. Bost. 196.

Alsine glabra. Fenzl, l. c., in part.

Alsine Grœnlandica. Gray, Manual, 2 ed. 58. Matthew, Pl. Acad. 8.

A. lanuginosa. Rohrb. in Mart. Fl. Bras. fasc. 56, 274, t. **63,** & syn.; Linn. 37. 260.

Spergulastrum lanuginosum. Michx. Fl. 1. 275. Poir. Dict. 7. 308. Don, Mill. 1. 448. Kunze, Linn. 20. 50.

Micropetalon lanuginosum. Persoon, 1. 509. Elliott, 1. 522. Spreng. Syst. 2. 416. Dietr. 2. 1590.

A. alsinoides. Willd.; Schlecht. in Berl. Mag. 7. 201, not Raddi.

Stellaria elongata. Nutt. Genera, 1. 289. DC. Prodr. 1. 399. Spreng. Syst. 2. 393. Don, Mill. 1. 431. Dietr. 2. 1556.

A. diffusa. Elliott, 1. 519. Hook. Jour. Bot. 1. 196. Gray, Pl. Wright. 2. 18; Hall's Pl. Tex. 5. Griseb. Fl. W. Ind. 55. Torrey, Pac. R. Rep. 4. 69; Mex. Bound. 36. Chapman, 49. Wood, Cl.-Book, 259; Bot. & Fl. 56.

A. nemorosa. HBK. Nov. Gen. 6. 28. DC. Prodr. 1. 408.

Stellaria lanuginosa. Torr. & Gray, Fl. 1. 187 & 675. Gray, Pl. Fendl. 13.

A. lateriflora. Linn. Spec. 423. See syn. (under *Moehringia*) in Ledeb. Fl. Ross. 1. 371; Regel, Fl. Ost-Sib. 1. 376. — Pursh, 317. Goldie, Edinb. Phil. Jour. 6. 327. Richards. Frankl. Journ. 10. DC. Prodr. 1. 412. Torrey, Fl. U. S. 454; Nicol. Rep. 146. Bigel. Fl. Bost. 192. Spreng. Syst. 2. 395. Hook. Fl. Bor.-Am. 1. 102, t. **36.** Don, Mill. 1. 440. Bong. Sitch. 128. Beck, Bot. 53. Darling. Fl. Cestr. 277. Torr. & Gray, Fl. 1. 182 & 675. Eat. & Wr. 133. Dietr. 2. 1564. Seem. Bot. Herald, 51. Hook. f. Arct. Pl. 287. Rothr. Fl. Alask. 444. Gray, Manual, 91. Watson, King's Rep. 5. 41. Porter, Hayd. Rep. 1871, 479; Fl. Col. 14. Coulter, Hayd. Rep. 1872, 762. Rothr. Pl. Wheel. 35.

? *A. Pennsylvanica.* Muhl. Ind. Fl. Lanc. 169.

A. buxifolia. Poir. Dict. 6. 362. DC. Prodr. 1. 411. Spreng. Syst. 2. 396. Hook. Fl. Bor.-Am. 1. 101. Don, Mill. 1. 439. Torr. & Gray, Fl. 1. 182. Eat. & Wr. 133. Dietr. 2. 1563.

Stellaria biflora. Pursh, 317.

A. Haenkeana. Bartl.; Presl, Rel. Haenk. 2. 15.

Moehringia lateriflora. Fenzl, Ann. Mus. Wien. 1. 18 & 38. Torrey, Fl. N. Y. 1. 96; Bot. Wilkes, 246. Gray, Genera, 2. 36, t. **112**; Pac. R. Rep. 12. 41; Struct. Bot. 396, f. **724–726**; Manual, 2 ed. 58; Proc. Acad. Philad. 1863, 59. Engelm. Pl. Upp. Miss. 186. Cooper, Pac. R. Rep. 12. 56. Pl. Bourgeau, 255.

A. macrocarpa. Pursh, 318. Poir. Suppl. 5. 7. DC. Prodr. 1. 405. Spreng. Syst. 2. 399. Cham. & Schlecht. in Linn. 1. 55. Hook. Fl. Bor.-Am. 1. 101. Don, Mill. 1. 434. Torr. & Gray, Fl. 1. 182 & 675. Eat. & Wr. 132. Dietr. 2. 1558. Hook. f. Arct. Pl. 287. Rothr. Alask. 444.

Alsine macrocarpa. Fenzl, Ann. Mus. Wien. 1. 18; Ledeb. Fl. Ross. 1. 353. Regel, Fl. Ost-Sib. 1. 354, t. **8,** f. **6–19,** & syn. Walp. Ann. 7. 306.

A. macrophylla. Hook. Fl. Bor.-Am. 1. 102, t. **37.** Don, Mill. 1. 440. Torr. & Gray, Fl. 1. 182. Eat. & Wr. 133. Dietr. 2. 1564. Torrey, Pac. R. Rep. 4. 69. Cooper, same, 12. 56. Gray, Proc. Am. Acad. 8. 378.

Moehringia umbrosa. Gray, Pl. Fendl. 13; Pl. Wright. 2. 18, not Fenzl.
Moehringia macrophylla. Torrey, Bot. Wilkes, 246.

A. Michauxii. Hook. f. Arct. Pl. 287 & 322.
? *A. setacea.* Muhl. Ind. Fl. Lanc. 169.
A. stricta. Michx. Fl. 1. 274. Poir. Dict. 6. 376. Pursh, 319. Elliott, 1. 521. Torrey, Fl. U. S. 455; Fl. N. Y. 1. 95. DC. Prodr. 1. 403. Bigel. Fl. Bost. 191. Spreng. Syst. 2. 404. Hook. Fl. Bor.-Am. 1. 99, **t. 33.** Don, Mill. 1. 433. Beck, Bot. 52. Darling. Fl. Cestr. 276. Torr. & Gray, Fl. 1. 179. Eat. & Wr. 182. Dietr. 2. 1558. Gray, Manual, 91; Hall's Pl. Tex. 5.
Alsine Michauxii. Fenzl, Ann. Mus. Wien. 1. 18. Engelm. Pl. Upp. Miss. 185. Torrey, Pac. R. Rep. 4. 69. Gray, Manual, 2 ed. 58. Chapman, 49. Regel, Fl. Ost-Sib. 1. 351, **t. 8, f. 1–5.** Walp. Ann. 7. 306.

A. palustris. Watson, Bot. Calif. 1. 70.
Alsine palustre. Kellogg, Proc. Calif. Acad. 3. 61.

A. patula. Michx. Fl. 1. 273. Persoon, 1. 504. Poir. Dict. 6. 373. DC. Prodr. 1. 405. Don, Mill. 1. 435. Torr. & Gray, Fl. 1. 180. Eat. & Wr. 134. Dietr. 2. 1559. Gray, Manual, 91.
Alsine patula. Gray, Manual, 2 ed. 58. Chapman, 49.

A. peploides. Linn. Spec. 423. See syn. (under *Honkenya*) in Ehrh. Beitr. 2. 181; Fenzl, Ledeb. Fl. Ross. 1. 358; Regel, Fl. Ost-Sib. 1. 335. — Pursh, 317. Richards. Frankl. Journ. 10. Torrey, Fl. U. S. 453. Hook. Trans. Linn. Soc. 14. 368; Fl. Bor.-Am. 1. 102. Bigel. Fl. Bost. 192. DC. Prodr. 1. 413. Spreng. Syst. 2. 395. Meyer, Pl. Lab. 91. Beck, Bot. 53. Hook. & Arn. Bot. Beechey, 122. Eat. & Wr. 133. Dietr. 2. 1565. Gray, Manual, 92.
Honkenya peploides, Ehrh. Torr. & Gray, Fl. 1. 176. Torrey, Fl. N. Y. 1. 93; Bot. Wilkes, 244. Gray, Genera, 2. 32, **t. 110**; Manual, 2 ed. 57. Seem. Bot. Herald, 26. Hook. f. in Jour. Linn. Soc. 1. 116 & 121; Arct. Pl. 288 & 322. Dickie, Jour. Linn. Soc. 3. 110. Matthew, Pl. Acad. 21.
Adenarium peploides. Raf. in Desv. Jour. Bot. 1818, 259. DC. Prodr. 3. 366.
Halianthus peploides, Fries. Lange, Pl. Grönl. 132.

Var **oblongifolia.**
A. peploides. Cham. & Schlecht. in Linn. 1. 37. Bong. Sitch. 128.
A. peploides, var. *major.* Hook. Fl. Bor.-Am. 1. 102.
Honkenya oblongifolia. Torr. & Gray, Fl. 1. 176.
A. Sitchensis. Dietr. 2. 1565.
Honkenya peploides, var. *oblongifolia.* Fenzl, Ledeb. Fl. Ross. 1. 358. Cooper, Pac. R. Rep. 12. 56. Regel, Fl. Ost-Sib. 1. 336, & syn.

A. physodes. DC. Prodr. 1. 413.
Stellaria ovalifolia. Hook. Fl. Bor.-Am. 1. 97. Hook. & Arn. Bot. Beechey, 122. Dietr. 2. 1556.
Merckia physodes. Fisch.; Cham. & Schlecht. in Linn. 1. 59. Spreng. Syst. 4. 124. Hook. Fl. Bor.-Am. 1. 103. Don, Mill. 1. 441. Torr. & Gray, Fl. 1. 176. Eat. & Wr. 318. Dietr. 2. 999. Fenzl, Ledeb. Fl. Ross. 1. 359. Seem. Bot. Herald, 26. Hook. f. Arct. Pl. 288. Regel, l. c. 1. 424. Rothr. Alask. 444.

A. Pitcheri. Nutt.; Torr. & Gray, Fl. 1. 180. Eat. & Wr. 134. Dietr. 2. 1559. Engelm. & Gray, Pl. Lindh. 33. Wood, Bot. & Fl. 56.
Alsine microsperma. Fenzl, Ann. Mus. Wien. 1. 18.
Alsine Pitcheri. Wood, Cl.-Book. 260.

A. Pumilio. R. Br. in Parry's 2d Voy. Appx. 391. Hook. Fl. Bor.-Am. 1. 100. Referred to *A. arctica* by Torr. & Gray, Fl. 1. 181.

A. pungens. Nutt.; Torr. & Gray, Fl. 1. 179, not Clem. Eat. & Wr. 133. Dietr. 2. 1559. Anderson, Cat. 118. Watson, King's Rep. 5. 40. Coulter, Hayd. Rep. 1872, 762.

? *A. juniperina.* James, Cat. 182.

A. saxosa. Gray, Pl. Wright. 2. 18. Walp. Ann. 4. 258.

A. SERPYLLIFOLIA, Linn. Michx. Fl. 1. 274. Pursh, 317. Elliott, 1. 518. Torrey, Fl. U. S. 454; Fl. N. Y. 1. 94. Bigel. Fl. Bost. 192. Hook. Jour. Bot. 1. 196. Beck, Bot. 52. Darling. Fl. Cestr. 276. Torr. & Gray, Fl. 1. 182. Eat. & Wr. 132. Chapman, 49. Hook. f. Arct. Pl. 287. Gray, Manual, 91.

A. squarrosa. Michx. Fl. 1. 273. Poir. Dict. 6. 372. Pursh, 316. Elliott, 1. 520. Torrey, Fl. U. S. 454; Fl. N. Y. 1. 95, **t. 14.** DC. Prodr. 1. 403. Spreng. Syst. 2. 403. Don, Mill. 1. 433. Torr. & Gray, Fl. 1. 179. Eat. & Wr. 132. Dietr. 2. 1558. Gray, Manual, 91.

A. Caroliniana. Walter, 141. Poir. Dict. 6. 378.

A. imbricata. Raf. in Desv. Jour. Bot. 1. 229. Poir. Suppl. 5. 8.

A. Rafinesquiana. Ser. in DC. Prodr. 1. 409. Don, Mill. 1. 437. Dietr. 2. 1561.

Alsine squarrosa. Fenzl, Ann. Mus. Wien. 1. 18. Gray, Genera, 2. 34, **t. 111.** Chapman, 49.

A. stricta. See syn. (under *Alsine*) in Fenzl, Ledeb. Fl. Ross. 1. 357; Regel, Fl. Ost-Sib. 1. 338 & 349.

Spergula stricta. Swartz, Act. Holm. (1799) 20. 229; Schrad. Jour. 2. 255.

A. uliginosa. Schleich; DC. Fl. Fr., & Prodr. 1. 407. Hook. f. Arct. Pl. 287 & 322. Gray, Proc. Phil. Acad. 1863, 58.

Alsine stricta, Wahl. Lange, Pl. Grönl. 132.

Arenaria Rossii. R. Br. in Frankl. Journ. 10, & Parry's 1st Voy. 272 (Regensb. Flora, 71, Beil. 81). Spreng. Syst. 4. 182. Hook. Fl. Bor.-Am. 1. 100. Don, Mill. 1. 434. Torr. & Gray, Fl. 1. 181. Eat. & Wr. 132. Dietr. 2. 1559. Seem. Bot. Herald, 54. Hook. f. Jour. Linn. Soc. 1. 116; Arct. Pl. 287 & 322. Dickie, Jour. Linn. Soc. 3. 110. Pl. Bourgeau, 255. Porter, Hayd. Rep. 1870, 473; Fl. Col. 14. Rothr. Pl. Wheel. 35.

A. elegans. Cham. & Schlecht. in Linn. 1. 57. Spreng. Syst. 4. 181.

Alsine Rossii. Fenzl, Ann. Mus. Wien. 1. 18; Ledeb. Fl. Ross. 1. 356. Regel, Fl. Ost-Sib. 1. 338 & 353.

A. tenella. Nutt.; Torr. & Gray, Fl. 1. 179. Eat. & Wr. 133. Dietr. 2. 1559. Cooper, Pac. R. Rep. 12. 56. Boland. Cat. 6. Gray, Proc. Am. Acad. 8. 378.

A. tenuifolia, var. *Americana.* Fenzl, Ann. Mus. Wien. 1. 18.

Alsine tenella. Torrey, Mex. Bound. 36; Bot. Wilkes, 243.

A. verna. Linn. Mant. 1. 72. See syn. in DC. Prodr. 1. 405; Fenzl, Ledeb. Fl. Ross. 1. 347, & Regel, Fl. Ost-Sib. 1. 337, under *Alsine;* Hook. f. Arct. Pl. 287 & 322. — Hook. Fl. Bor.-Am. 1. 99. Torr. & Gray, Fl. 1. 181. Porter, Hayd. Rep. 1870, 473. Watson, King's Rep. 5. 41 & 417. Coulter, Hayd. Rep. 1872, 762.

A. juniperina. Pursh, 319, not Sm. Meyer, Pl. Lab. 92. Hook. Fl. Bor.-Am. 1. 98. Torr. & Gray, Fl. 1. 179 & 674. Eat. & Wr. 132.

Alsine Mexicana. Bartl. in Presl, Rel. Haenk. 2. 14.

Var. **hirta.** Watson, King's Rep. 5. 41. Porter, Fl. Col. 14. Rothr. Pl. Wheel. 35.

A. hirta. Wormsk.; Hornem. Fl. Dan. 10, **t. 1646,** excl. syn. DC. Prodr. 1. 405. Spreng. Syst. 2. 399. Cham. & Schlecht. in Linn. 1. 56. Hook. Fl. Bor.-

Am. 1. 99. Don, Mill. 1. 434. Torr. & Gray, Fl. 1. 181. Hook. & Arn. Bot. Beechey, 122. Eat. & Wr. 133. Seem. Bot. Herald, 26.

A. propinqua. Richards. Frankl. Journ. 10. Hook. Fl. Bor.-Am. 1. 99. Torr. & Gray, Fl. 1. 181. Eat. & Wr. 133. Dietr. 2. 1561. Pl. Bourgeau, 255.

Alsine verna, var. *hirta.* Fenzl, l. c.

Alsine rubella, var. *hirta.* Lange, Pl. Groenl. 132.

Alsine propinqua. Lange, Fl. Dan. t. **2903**; Bull. Acad. Dan. 1877, 33 & 75.

Var. **rubella.** Hook. i. in Jour. Linn. Soc. 5. 82.

A. Giesekii. Hornem. Fl. Dan. 9, t. **1518.** DC. Prodr. 1. 409. Spreng. Syst. 2. 398. Don, Mill. 1. 437. Dietr. 2. 1562.

A. quadrivalvis. R. Br. in Parry's 1st Voy. 271 (Regensb. Flora, 7[1], Beil. 79). Spreng. Syst. 4. 181.

A. rubella. Hook. in Parry's 2d Voy. 391; Trans. Linn. Soc. 14, 368; Fl. Lond. n. s., t. **200**; Fl. Bor.-Am. 1. 100. Torr. & Gray, Fl. 1. 181. Eat. & Wr. 133. Dietr. 2. 1559. Seem. Bot. Herald, 55. Hook. f. in Jour. Linn. Soc. 1. 116. Dickie, same, 3. 110 & 11. 33.

A. hirta, var. *glabrata.* Cham. & Schlecht. in Linn. 1. 56.

Alsine verna, var. *glacialis.* Fenzl, l. c.

Alsine rubella, var. *Giesekii.* Lange, Pl. Grönl. 132.

Alsine verna, var. *Gerardi.* Regel, Fl. Ost-Sib. 1. 342.

A. alpina & arctica; biflora.
alsinoides; lanuginosa.
brevifolia; Californica.
buxifolia; lateriflora.
cæspitosa; Sagina nivalis.
calycantha; Stellaria borealis.
Canadensis; Lepigonum medium.
Caroliniana; squarrosa.
diffusa; lanuginosa.
elegans; stricta.
formosa; capillaris.
Giesekii; verna.
glabra; Grœnlandica, Stellaria uniflora.
Haenkeana; lateriflora.
hirta; verna.
Hookeri; Franklinii.
imbricata; squarrosa.
juniperina; pungens, verna.
laricifolia; arctica.
lateriflora; Stellaria borealis.

A. marina; Lepigonum medium.
monticola; Benthamii.
nardifolia; capillaris.
nemorosa: lanuginosa.
obtusa; biflora.
Pennsylvanica; lateriflora.
propinqua; verna.
Purshiana; Stellaria humifusa.
quadrivalvis; verna.
Rafinesquiana; squarrosa.
Rossii; stricta.
rubella; verna.
rubra; Lepigonum rubrum.
setacea & stricta; Michauxii.
Sitchensis; peploides.
tenuifolia; tenella.
thymifolia; biflora, Stellaria humifusa.
uliginosa; stricta.
verna; Douglasii.

CERASTIUM alpinum. Linn. Spec. 438. See syn. in Fenzl, Ledeb. Fl. Ross. 1. 409, and under *C. vulgatum* in part; Regel, Fl. Ost-Sib. 1. 433 & 434. — R. Br. in Ross's Voy. 142; Parry's 1st Voy. 270 (Regensb. Flora, 7[1], Beil. 77). Schrank, Pfl. Lab. 25. Richards. Frankl. Journ. 18. Hook. in Parry's 2d Voy. 390; Trans. Linn. Soc. 14. 367; Fl. Bor.-Am. 1. 104. Meyer, Pl. Lab. 94. Schlecht. in Linn. 10. 103. Torr. & Gray, Fl. 1. 188. Eat. & Wr. 188. Seller, Ann. & Mag. Nat. Hist. 1. 16. 169. Seem. Bot. Herald, 27 & 55. Durand, Pl. Kane, 189. Lange,

Pl. Grönl. 132. Hook. f. Jour. Linn. Soc. 1. 116 & 121, & 5. 82; Arct. Pl. 288 & 323. Pl. Bourgeau, 255 & 262. Dickie, Jour. Linn. Soc. 3. 110, & 11. 33.

C. lanatum, Lam. Persoon, 1. 521. Willd. Enum. 492.

C. latifolium. Greville, Mem. Soc. Wern. 3. 429, not DC.

C. vulgatum. Hook. f. Arct. Pl. 288, in part.

Var. **Behringianum**. Regel, Fl. Ost-Sib. 1. 435.

C. Behringianum. Cham. & Schlecht. in Linn. 1. 62. Spreng. Syst. 4. 183. Hook. Fl. Bor.-Am. 1. 105. Don, Mill. 1. 445. Torr. & Gray, Fl. 1. 188. Eat. & Wr. 189. Seem. Bot. Herald, 27.

C. vulgatum, var. *Behringianum*. Fenzl, Ledeb. Fl. Ross. 1. 409. Gray, Am. Jour. Sci. 2. 33. 405; Proc. Acad. Philad. 1863, 59. Rothr. Alask. 444. Watson, King's Rep. 5. 38. Coulter, Hayd. Rep. 1872, 761. Porter, Fl. Col. 13.

Var. **Fischerianum**. Torr. & Gray, Fl. 1. 188. Seem. Bot. Herald, 27. Durand, Pl. Kane, 189. Regel, Fl. Ost-Sib. 1. 438.

C. rigidum. Ledeb. in Mem. Petr. 5. 538; Icon. Fl. Ross. t. 149. DC. Prodr. 1. 420. Cham. & Schlecht. in Linn. 1. 62. Hook. Fl. Bor.-Am. 1. 105. Torr. & Gray, Fl. 1. 189. Eat. & Wr. 189. Dietr. 2. 1591. Fenzl, Ledeb. Fl. Ross. 1. 407.

C. Fischerianum. Ser. in DC. Prodr. 1. 419. Cham. & Schlecht. in Linn. 1. 60. Hook. Fl. Bor.-Am. 1. 103. Don, Mill. 1. 445. Seem. Bot. Herald, 51.

C. alpinum. Hook. Fl. Bor.-Am. 1. 104, in part. Bong. Sitch. 128. Lessing, Linn. 9. 151. Hook. & Arn. Bot. Beechey, 122.

C. vulgatum, vars. *grandiflorum* & *macrocarpum*. Fenzl, Ledeb. Fl. Ross. 1. 409. Rothr. Alask. 444. Reg. & Til. Fl. Ajan. 75.

Var. **glabratum**. Hook. in Parry's 2d Voy. 390; Fl. Bor.-Am. 1. 104. Torr. & Gray, Fl. 1. 188. Seem. Bot. Herald, 55.

Var. (?) **uniflorum**. Durand. Pl Kane, 189.

C. arvense. Linn. Spec. 438. See syn. in DC. Prodr. 1. 419; Fenzl, Ledeb. Fl. Ross. 1. 412; Regel, Fl. Ost-Sib. 1. 427 & 444; Rohrb. in Linn. 37. 303. — Richards. Frankl. Journ. 10. Hook. Fl. Bor.-Am. 1. 104; Lond. Jour. Bot. 6. 75. Bigel. Fl. Bost. 196. Torr. & Gray, Fl. 1. 188. Eat. & Wr. 188. Torrey, Fl. N. Y. 1. 99. Bot. Wilkes, 246. Engelm. Pl. Upp. Miss. 186. Gray, Pac. R. Rep. 12. 41; Am. Jour. Sci. 2. 33. 405; Proc. Acad. Philad. 1863, 59; Manual, 94. Cooper, Pac. R. Rep. 12. 57. Chapman, 50. Hook. f. Arct. Pl. 288 & 323. Pl. Bourgeau, 255 & 262. Porter, Hayd. Rep. 1870, 473; 1871, 479; Fl. Col. 13. Watson, King's Rep. 5. 38 & 417. Coulter, Hayd. Rep. 1872, 762. Rothr. Pl. Wheel. 35.

? *C. hybridum*. Muhl. Ind. Fl. Lanc. 170.

C. Pennsylvanicum. Hornem. Hort. Hafn. 435. DC. Prodr. 1. 420. Spreng. Syst. 2. 418. Don, Mill. 1. 446.

C. elongatum. Pursh, 321. Poir. Suppl. 5. 601. Torrey, Fl. U. S. 460. DC. Prodr. 1. 417. Spreng. Syst. 2. 417. Hook. Fl. Bor.-Am. 1. 103. Don, Mill. 1. 444. Nutt. Jour. Acad. Phil. 7. 16.

C. tenuifolium. Pursh, 321. Poir. Suppl. 5. 601. Torrey, Fl. U. S. 460. DC. Prodr. 1. 417. Bigel. Fl. Bost. 196. Don, Mill. 1. 444. Darling. Fl. Cestr. 277.

C. maximum. Linn. Spec. 439. See syn. in Fenzl, Ledeb. Fl. Ross. 1. 399; Regel, Fl. Ost-Sib. 1. 428. — Seem. Bot. Herald, 51. Hook. f. Arct. Pl. 288.

C. nutans. Raf. Prec. Decouv. 36 & Desv. Jour. Bot. 4. 269. Poir. Suppl. 5. 601. Torrey, Cat. Pl. N. Y. 44; Fl. U. S. 459; Fl. N. Y. 1. 100. DC. Prodr. 1. 420. Hook. Fl. Bor.-Am. 1. 189. Don, Mill. 1. 446. Darling. Fl. Cestr. 280. Torr. & Gray, Fl. 1. 189 & 675. Eat. & Wr. 188. Dietr. 2. 1594. Gray, Pl. Fendl. 18; Genera, 2. 40, t. 114; Pac. R. Rep. 12. 41; Manual, 94. Parry, Pl. Minn. 609.

Engelm. Pl. Upp. Miss. 185. Chapman, 50. Watson, King's Rep. 5. 88. Coulter, Hayd. Rep. 1872, 761. Rohrb. in Linn. 37. 288.

C. longepedunculatum. Muhl. Cat. 47. Barton, Comp. Fl. Philad. 1. 215.

C. glutinosum. Nutt. Genera, 1. 291.

C. tenellum. Fenzl, Ann. Mus. Wien. 1. 18.

C. apricum. Schlecht. in Linn. 12. 208.

C. oblongifolium. Anderson, Cat. Pl. Nev. 118.

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C. oblongifolium. Torrey, Fl. U. S. 460; Fl. N. Y. 1. 99. Darling. Fl. Cestr. 33. Torr. & Gray, Fl. 1. 188. Eat. & Wr. 188. Dietr. 2. 1594. Gray, Manual, 94.

C. villosum. Muhl. Cat. 46. Darling. Fl. Cestr. 2 ed. 279.

C. arvense. Pursh, 231? Richards. Frankl. Journ. 738.

? *C. bracteatum.* Raf. Prec. Decouv. 36. Poir. Suppl. 5. 601. DC. Prodr. 1. 420. Don, Mill. 1. 447. Torr. & Gray, Fl. 1. 189. Eat. & Wr. 188.

C. —— ? n. sp. Torrey, Am. Jour. Sci. 4. 63.

C. pubescens. Goldie, Edinb. Phil. Jour. 4. 328. Richards. Frankl. Journ. 2 ed. 18. DC. Prodr. 1. 420. Don, Mill. 1. 447.

C. Pennsylvanicum. Hook. Fl. Bor.-Am. 1. 104.

C. pilosum. Ledeb. in Mem. Petr. 5. 539; Icon. Fl. Ross. t. 351. See syn. in Fenzl, Ledeb. Fl. Ross. 1. 398; Regel, Fl. Ost-Sib. 1. 426 & 427.

C. stellarioides. Moç.; DC. Prodr. 1. 415. Hook. Fl. Bor.-Am. 1. 103. Don, Mill. 1. 442. Torr. & Gray, Fl. 1. 187. Eat. & Wr. 188. Dietr. 2. 1591.

C. oblongifolium. Torrey, Pac. R. Rep. 4. 70.

C. QUATERNELLUM, Fenzl. Gray, Manual, 94.

Sagina erecta, Linn. Torr. & Gray, Fl. 1. 177. Eat. & Wr. 405. Gray, Manual, 1 ed. 64.

Moenchia quaternella, Ehrh. Wood, Bot. & Fl. 56.

C. trigynum, Vill. See syn. in Fenzl, Ledeb. Fl. Ross. 1. 396; Regel, Fl. Ost-Sib. 1. 425; Edgew. & Hook. f. Fl. Brit. Ind. 227.

Stellaria cerastioides, Linn. Hook. Trans. Linn. Soc. 14. 367. Torr. & Gray, Fl. 1. 184. Eat. & Wr. 443. Lange, Pl. Grönl. 132. Hook. f. in Jour. Linn. Soc. 5. 82; Arct. Pl. 288.

C. VISCOSUM, Linn. Hook. f. Arct. Pl. 288. Pl. Bourgeau, 255. Rhorb. in Mart. Fl. Bras. fasc. 56. 279. United with *C. vulgatum* by Edgew. & Hook. f. in Fl. Brit. Ind. 1. 228.

C. vulgatum, Linn. Herb., not Spec. Pursh, 321. Elliott, 1. 524. DC. Prodr. 1. 415. Torrey, Fl. U. S. 458; Fl. N. Y. 1. 98. Hook. Fl. Bor.-Am. 1. 103; Jour. Bot. 1. 196. Bigel. Fl. Bost. 195. Darling. Fl. Cestr. 33. Torr. & Gray, Fl. 1. 187. Eat. & Wr. 188. Gray, Pl. Wright. 2. 18; Manual, 98; Hall's Pl. Tex. 5; Proc. Am. Acad. 8. 378. Chapman, 70.

C. hirsutum. Muhl. Cat. 46. Elliott, 1. 524. Torrey, Fl. U. S. 459.

C. connatum. Beck, Bot. 55.

C. glomeratum, Thuill. Hook. f. Fl. Brit. 55, suppressing the Linnean name.

Var. tenellum. Grenier, Regensb. Flora, 231. 266.

C. semidecandrum, not Linn. Walter, 142. Pursh, 320. Muhl. Cat. 47. Torrey, Fl. U. S. 459. Bigel. Fl. Bost. 196. Lange, Pl. Grönl. 133.

C. viscosum, var. Torr. & Gray, Fl. 1. 187.

C. vulgatum, var. (?) *semidecandrum.* Gray, Manual, 94.

C. VULGATUM, Linn. Schrank, Pfl. Lab. 25. Meyer, Pl. Lab. 94. Regel, Fl. Ost-Sib. 1. 432, vars. & syn. Rohrb. in Mart. Fl. Bras. fasc. 56. 284. Hook. f. Arct. Pl. 288 & 323, in part. Rothr. Alask. 444.

C. viscosum, Linn. Herb., not Spec. Pursh, 320. Elliott, 1. 524. Richl Frankl. Journ. 10. DC. Prodr. 1. 416. Torrey, Fl. U. S. 458; Fl. N. Y. Hook. Fl. Bor.-Am. 1. 103; Jour. Bot. 1. 196. Bigel. Fl. Bost. 196. Darlin Cestr. 33. Torr. & Gray, Fl. 1. 187. Eat. & Wr. 188. Seem. Bot. Heral Chapman, 50. Gray, Manual, 94. Rothr. in Pl. Wheel. 35.

C. fulvum. Raf. Prec. Decouv. 36, & Desv. Jour. Bot. 2. 269. Poir. Suppl. 5 DC. Prodr. 1. 417. Don, Mill. 1. 441. Dietr. 2. 1592.

? *C. velutinum*. Raf. in Desv. Jour. Bot. 1. 225. Poir. Suppl. 5. 601.

C. triviale, Link. Lange, Pl. Grönl. 132. Hook. f. Fl. Brit. 55, suppressin Linnean name.

C. apricum; nutans.
arvense; oblongifolium.
Behringianum; alpinum.
bracteatum; oblongifolium.
connatum; viscosum.
elongatum; arvense.
Fischerianum; alpinum.
fulvum; vulgatum.
glomeratum; viscosum.
glutinosum; nutans.
hirsutum; viscosum.
hybridum; arvense.
lanatum & latifolium; alpinum.
longepedunculatum; nutans.
C. oblongifolium; pilosum.
Pennsylvanicum; arvense, oblo lium.
pubescens: oblongifolium.
rigidum; alpinum.
semidecandrum; viscosum.
stellarioides; pilosum.
tenellum; nutans.
tenuifolium; arvense.
triviale; vulgatum.
velutinum & viscosum; vulgatum.
villosum; oblongifolium.
vulgatum; alpinum, viscosum.

DIANTHUS alpinus. Linn. Spec. 412. See syn. in Regel, Fl. Ost-Sib. 1. Hook. f. Arct. Pl. 287 & 321.

Var. **repens.** Regel, l. c. 286.

D. repens. Willd. Spec. 2. 681. DC. Prodr. 1. 358. Cham. & Schlecht. in 1. 42. Hook. Fl. Bor.-Am. 1. 87. Don, Mill. 1. 393. Torr. & Gray, Fl. 1 Hook. & Arn. Bot. Beechey, 122. Eat. & Wr. 223. Ledeb. Fl. Ross. 1. Seem. Bot. Herald, 27, t. 4. Rothr. Alask. 444.

D. ARMERIA, Linn. Pursh, 314. Torrey, Fl. U. S. 447. Bigel. Fl. Bost. 190. & Gray, Fl. 1. 195. Eat. & Wr. 223. Gray, Manual, 88.

? *D. Caroliniana.* Walter, 140, fide Spreng. Syst. 2. 375. Poir. in Lam. 4. 517. Don, Mill. 1. 384. Torr. & Gray, Fl. 1. 195 & 676. Eat. & Wr. Dietr. 2. 1543.

D. armerioides. Raf. in Desv. Jour. Bot. 2. 569.

D. PROLIFER, Linn. Wood, Bot. & Fl. 52.

DRYMARIA crassifolia. Benth. Bot. Sulph. 16. Walp. Rep. 5. 76. Pl. Wright. 2. 18; Proc. Am. Acad. 5. 154. — (Northern Mexico.)

D. polycarpoides. Gray, Pl. Fendl. 12. Walp. Ann. 2. 91.

D. effusa. Gray, Pl. Wright. 2. 19. Walp. Ann. 4. 246. Torrey, Mex. Boun

D. frankenioides. HBK. Nov. Gen. 6. 21, t. 515. DC. Prodr. 1. 395. T Mex. Bound. 37. Gray, Proc. Am. Acad. 5. 154. — (Northern Mexico.)

? *Spergularia rupestris.* Benth. Bot. Sulph. 17.

D. glandulosa. Bartl. in Presl, Rel. Haenk. 2. 9. Gray, Pl. Wright 2. 18. rey, Pac. R. Rep. 4. 70; Mex. Bound. 37.

? *D. ramosissima.* Schlecht. in Linn. 12. 206.

D. cordata. Gray, Pl. Fendl. 13, not Willd.

D. holosteoides. Benth. Bot. Sulph. 16. Walp. Rep. 5. 76. — (Lower California.)

D. nodosa. Engelm.; Gray, Pl. Fendl. 12. Walp. Ann. 2. 91. — (Northern Mexico.)

D. sperguloides. Gray, Pl. Fendl. 11; Pl. Wright. 2. 19. Walp. Ann. 2. 91. Torrey, Mex. Bound. 37.

D. tenella. Gray, Pl. Fendl. 12; Pl. Wright. 2. 19. Walp. Ann. 2. 91.

D. xerophylla. Gray, Pl. Wright. 2. 18. Walp. Ann. 4. 246. — (Northern Mexico.)

HOLOSTEUM UMBELLATUM, Linn. Gray, Manual, 93.

LEPIGONUM macrothecum. Fisch. & Mey. Ind. Sem. Petr. 3. 14. Kindberg, Syn. Lepig. 14; Monog. 16, t. **1**, f. **1**.

Arenaria macrotheca., Hornem.; Cham. & Schlecht. in Linn. 1. 53.

A. rubra, var. Cham. & Schlecht. l. c.

Spergula rubra, var. (?) γ. Torr. & Gray, Fl. 1. 175.

Arenaria rubra. Hook. & Arn. Bot. Beechey, 325.

Lepigonum Chilense. Fisch. & Mey. l. c.

Spergularia rubra. Torrey, Pac. R. Rep. 4. 70; Mex. Bound. 37, in part; Bot. Wilkes, 247, in part. Boland. Cat. 6.

L. medium. Fries, Nov. Fl. Suec. Mant. 3. 33. See syn. in Fenzl, Ledeb. Fl. Ross. 2. 168, and Rohrb. Mart. Fl. Bras. fasc. 56. 272, under *Spergularia.* — Kindberg, Monog. Lepig. 24, t. **2**, f. **11**, with syn.

Arenaria rubra, var. β. Michx. Fl. 1. 274. Torrey, Fl. U. S. 456.

Arenaria media. Persoon, 1. 504. Hook. Fl. Antarct. 2. 250.

Arenaria Canadensis. Persoon, 1. 504. Pursh, 319. Poir. Suppl. 5. 2. Elliott, 1. 519. DC. Prodr. 1. 401. Spreng. Cyst. 2. 400. Beck, Bot. 52. Dietr. 2. 1598.

Arenaria marina. Bigel. Fl. Bost. 191.

Spergularia Canadensis. Don, Mill. 1. 426.

Spergula rubra, var. (?) β. Torr. & Gray, Fl. 1. 175. Torrey, Fl. N. Y. 1. 107.

Spergularia rubra, var. *marina.* Gray, Manual, 1 ed. 64. Matthew, Pl. Acad. 21.

Lepigonum leiospermum. Kindberg, l. c. 23, t. **2**, f. **10**.

Spergularia media, Presl. Gray, Manual, 95. Watson, King's Rep. 5. 42.

? *Spergularia media*, var. Gray, Proc. Am. Acad. 8. 378.

Var. **macrocarpa.**

Spergularia media, var. *macrocarpa.* Gray, Manual, 95, excl. syn.

L. rubrum. Fries, Fl. Hall. 76. See syn. in Fenzl, Ledeb. Fl. Ross. 2. 167, under *Spergularia.* — Kindberg, Monog. Lepig. 40, t. **3**, f. **29**, with syn.

Arenaria rubra. Linn. Spec. 423, excl. var. Persoon, 1. 504. Bigel. Fl. Bost. 190. Torrey, Fl. U. S. 456, excl. var. Hook. Fl. Bor.-Am. 1. 98. Beck, Bot. 52. Hook. f. Jour. Linn. Soc. 1. 116.

Spergularia rubra. Presl, Rel. Haenk. 2. 9. Eat. & Wr. 439. Gray, Genera, 2. 28, t. **108**; Pl. Wright. 2. 19; Manual, 1 ed. 64, excl. var.; Proc. Am. Acad. 8. 378. Cooper, Pac. R. Rep. 12. 56. Chapman, 48. Torrey, Bot. Wilkes, 247, in part.

Spergula rubra. Torr. & Gray, Fl. 1. 175, excl. vars. Torrey, Fl. N. Y. 1. 106, excl. var. Dietr. 2. 1508. This name is maintained by Edgw. & Hook. in Fl. Brit. Ind. 1. 244.

Spergularia rubra, var. *campestris.* Gray, Manual, 95.

Spergularia campestris, Aschers. Rohrb. in Mart. Fl. Bras. fasc. 56. 267.

L. salinum. Fries, Nov. Fl. Suec. Mant. 3. 34. Hook. f. Arct. Pl. 288 & 328. Kindberg, Monog. Lepig. 36, **t. 3, f. 27,** with syn.

Spergularia salina, Presl. Gray, Manual, 95.

Arenaria marina, Roth. Hornem. Fl. Dan. 13, **t. 2231.**

? *Spergularia rubra.* Torrey, Mex. Bound. 37, in part.

LŒFLINGIA squarrosa. Nutt.; Torr. & Gray, Fl. 1. 174 & 674. Eat. & Wr. 304. Walp. Rep. 1. 263. Gray, Pl. Wright. 1. 18; Genera, 2. 24, **t. 106.**

L. Texana. Hook. Icon. 3. 275, **t. 285.**

LYCHNIS affinis. Vahl, Fr. Mant. 3. 36. See syn. in Regel, Fl. Ost-Sib. 1. 319; Rohrb. in Linn. 36. 216, under *Melandryum involucratum.* Referred by Hook. f. to *L. apetala* in Arct. Pl. 321.

L. triflora. Hornem. Fl. Dan. 13, **t. 2173,** not R. Br.

Melandryum affine. Vahl; Liebm. Fl. Dan. 14. 5.

Wahlbergella affinis, Fries. Lange, Pl. Grönl. 133.

Melandryum involucratum, var. *affine.* Rohrb. l. c. 217. Watson, King's Rep. 5. 431.

L. alpina. Linn. Spec. 436. European. — Pursh, 321. DC. Prodr. 1. 387. Spreng. Syst. 2. 422. Hook. Fl. Bor.-Am. 1. 91. Meyer, Fl. Lab. 90. Torr. & Gray, Fl. 1. 194. Eat. & Wr. 308. Seller, Ann. & Mag. Nat. Hist. 1. 16. 169. Durand, Pl. Kane, 189. Hook. f. Arct. Pl. 289; Jour. Linn. Soc. 5. 82.

Viscaria alpina. Don, Mill. 1. 415. Lange, Pl. Grönl. 133.

L. apetala. Linn. Spec. 437. See syn. in Hook. f. Arct. Pl. 287 & 321; Regel, Fl. Ost-Sib. 1. 322 & 325; Trautv. in Trud. Petr. 1. 61; and under *Melandryum,* Fenzl, Ledeb. Fl. Ross. 1. 326; Trautv. in Pl. Middend. 53; Rohrb. in Linn. 36. 217. — R. Br. in Ross's Voy. 142; Parry's 1st Voy. 170. Richards. Frankl. Journ. 10. Hook. in Parry's 2d Voy. 389; Trans. Linn. Soc. 14. 365; Fl. Bor.-Am. 1. 91; Fl. Antarct. 1. 246. DC. Prodr. 1. 386. Cham. & Schlecht. in Linn. 1. 42. Torr. & Gray, Fl. 1. 194. Hook. & Arn. Bot. Beechey, 122. Eat. & Wr. 308. Seem. Bot. Herald, 27, 51 & 55. Durand, Pl. Kane, 189. Hook. f. in Jour. Linn. Soc. 1. 116 & 121, & 5. 82. Dickie, same, 3. 110 & 11. 33. Edgew. & Hook. f. Fl. Brit. Ind. 222.

L. frigida. Schrank, Pfl. Lab. 25.

Agrostemma apetala. Don, Mill. 1. 416.

Wahlbergella apetala, Fries. Lange, Pl. Grönl. 133.

Melandryum apetalum, Fenzl. Rothr. Alask. 444.

Var. **glabra.** Regel, Fl. Ost-Sib. 1. 327.

L. apetala. Pl. Bourgeau, 255.

L. Californica. Watson, Proc. Am. Acad. 12. 248.

Silene —— ? Brew. & Wats. Bot. Calif. 1. 66.

L. DIOICA, Linn. Greville, Mem. Soc. Wern. 3. 429. Hook. Trans. Linn. Soc. 14. 366. Hook. f. Arct. Pl. 287 & 321.

L. diurna, Linn. Wood, Bot. & Fl. 54.

L. Drummondii. Watson, King's Rep. 5. 37 & 432; Proc. Am. Acad. 12. 248. Porter, Hayd. Rep. 1871, 479; Fl. Col. 12. Coulter, Hayd. Rep. 1872, 761. Rothr. Pl. Wheel. 35.

Silene Drummondii. Hook. Fl. Bor.-Am. 1. 89; Lond. Journ. Bot. 6. 75. Don, Mill. 1. 405. Torr. & Gray, Fl. 1. 191, in part. Eat. & Wr. 427. Dietr. 2. 1573. Walp. Rep. 1. 278. Torrey, Frem. Rep. 87; Pac. R. Rep. 4. 69, in part. Engelm. Pl. Upp. Miss. 185. Newberry, Pac. R. Rep. 6. 67 ? Gray, Ives' Rep. 7; Am.

Journ. Sci. 2. 33. 405; Proc. Acad. Philad. 1863, 58. Pl. Bourgeau, 255. Rohrb. Mon. Silene, 183.

? *Silene Scouleri*, var. (?). Gray, Pl. Fendl. 13.

Elisanthe Drummondii. Ruprecht, Fl. Cauc. 1. 200.

L. apetala. Gray, Am. Journ. Sci. 2. 33. 405, in part.

L. apetala, var. *pauciflora*. Porter, Hayd. Rep. 1870, 473.

L. elata. Watson, Proc. Am. Acad. 12. 249.

Silene Scouleri. Pl. Bourgeau, 255.

L. GITHAGO, Lam. Torr. & Gray, Fl. 1. 194. Torrey, Fl. N. Y. 1. 102. Gray, Manual, 90.

Agrostemma Githago, Linn. Pursh, 321. Barton, Comp. Fl. Phil. 1. 216. Torrey, Fl. U. S. 461. Bigel. Fl. Bost. 197. Darling. Fl. Cestr. 281. Eat. & Wr. 117. Gray, Manual, 2 ed. 57. Chapman, 52.

L. Kingii. Watson, Proc. Am. Acad. 12. 247.

L. Ajanensis ? Watson, King's Rep. 5. 37.

L. montana. Watson, Proc. Am. Acad. 12. 247.

L. apetala. Gray, Am. Journ. Sci. 2. 33. 405, in part; Proc. Acad. Philad. 1863, 58. Watson, King's Rep. 5. 36. Porter, Fl. Col. 12. Rothr. Pl. Wheel. 35.

L. nuda. Watson, King's Rep. 5. 37; Proc. Am. Acad. 12. 248.

L. Parryi. Watson, Proc. Am. Acad. 12. 248.

L. triflora. R. Br. in Ross's Voy. 142. Dietr. 2. 1596. Regel, Fl. Ost-Sib. 1. 319. Watson, l. c. 247. Referred to *L. apetala* by Hook. f. in Arct. Pl. 321.

Agrostemma triflora. Don, Mill. 1. 417.

Melandryum triflorum. Liebm. Fl. Dan. 14, t. **2356**. Reg. & Til. Fl. Ajan. 6, excl. syn. & var. Rohrb. in Linn. 36. 231. Watson, King's Rep. 5. 431.

Wahlbergella triflora. Lange, Pl. Groenl. 133.

L. apetala, var. *pauciflora*. Durand, Pl. Kane, 189.

POLYCARPON depressum. Nutt.; Torr. & Gray, Fl. 1. 174, not Rohrb. in Mart. Fl. Bras. fasc. 56. 257. Eat. & Wr. 365. Walp. Rep. 1. 263.

P. TETRAPHYLLUM, Linn. f. Elliott, 1. 182. Torr. & Gray, Fl. 1. 174. Eat. & Wr. 365. Chapman, 48. Wood, Bot. & Fl. 57. Rohrb. l. c. 256, & syn.

SAGINA apetala. Linn. Mant. 2. 559. See syn. in Fenzl, Ledeb. Fl. Ross. 1. 388; Hook. f. Fl. Brit. 61. Referred to *S. procumbens* by Benth. in Brit. Fl. 120. — Muhl. Cat. 18. Torrey, Fl. U. S. 195; Fl. N. Y. 1. 94. Torr. & Gray, Fl. 1. 177. Eat. & Wr. 405. Gray, Manual, 94.

S. decumbens. Torr. & Gray, Fl. 1. 177. C. A. Meyer, Ind. Sem. Petr. 8. 70 (Linn. Litt.-Ber. 1841, 173). Gray, Hall's Pl. Tex. 5.

Spergula nodosa. Walter, 142.

Spergula decumbens. Elliott, 1. 523.

Spergula saginoides. Michx. Fl. 1. 276, not Linn. Pursh, 320. Torrey, Fl. U. S. 457.

Sagina procumbens. Pursh, 119. Elliott, 1. 221. Hook. Jour. Bot. 1. 195.

Spergula subulata. Hook. Fl. Bor.-Am. 1. 93, not Sw. Eat. & Wr. 439.

Sagina Elliottii. Fenzl, fide Gray, Manual, 2 ed. 61. Chapman, 48. Wood, Cl.-Book, 261.

Sagina subulata. Torr. & Gray, Fl. 1. 178, not Wimm. A. H. Smith, Proc. Acad. Philad. 1867, 18. Gray, Manual, 95, with var. **Smithii**.

S. Linnæi. Presl, Rel. Haenk. 2. 14. See syn. in Fenzl, Ledeb. Fl. Ross. 1. 389;

Regel, Fl. Ost-Sib. 1. 424. — Hook. f. Fl. Brit. 61. Watson, King's Rep. 5. 41. Porter, Hayd. Rep. 1871, 479; Fl. Col. 14. Coulter, Hayd. Rep. 1872, 762. Torrey, Bot. Wilkes, 243 ? Rothr. Pl. Wheel. 35.

Spergula saginoides. Linn. Spec. 441. DC. Prodr. 1. 394. Cham. & Schlecht. in Linn. 1. 46. Hook. Fl. Bor.-Am. 1. 93. Bong. Sitch. 128. Don, Mill. 1. 424. Eat. & Wr. 439. Dietr. 2. 1597.

Sagina saxatilis, Wimm. Lange, Pl. Grönl. 133. Hook. f. Fl. Brit. 61.

S. nivalis. Lindbl. Bot. Not. 66. See syn. in Babington, Seem. Jour. Bot. 2. 340. — Hook. f. Arct. Pl. 287 & 321. Watson, King's Rep. 5. 42.

Arenaria cæspitosa. Vahl in Hornem. Fl. Dan. 13, **t. 2289.**

Sagina intermedia. Fenzl, Ledeb. Fl. Ross. 1. 339.

Sagina cæspitosa. Lange, Pl. Grönl. 133.

S. nodosa. E. Meyer, Elench. Pl. Boruss. 29. See syn. in Fenzl, Ledeb. Fl. Ross. 1. 340. — Torr. & Gray, Fl. 1. 177. Lange, Pl. Grönl. 133. Hook. f. Arct. Pl. 287. Gray, Manual, 95.

Spergula nodosa, Linn. Richards. Frankl. Journ. 10. Hook. Fl. Bor.-Am. 1. 93. Eat. & Wr. 439.

S. occidentalis. Watson, Proc. Am. Acad. 10. 344.

Sagina procumbens. Boland. Cat. 6. Torrey, Bot. Wilkes, 242?

Sagina Linnæi. Gray, Proc. Am. Acad. 8. 378.

S. procumbens. Linn. Spec. 128. See syn. in Fenzl, Ledeb. Fl. Ross. 1. 338; Regel, Fl. Ost-Sib. 1. 424. — Torrey, Fl. U. S. 195; Fl. N. Y. 1. 93. Hook. Fl. Bor.-Am. 1. 92. Bigel. Fl. Bost. 65. Torr. & Gray, Fl. 1. 177. Eat. & Wr. 405. Gray, Genera, 2. 30, **t. 109**; Manual, 94. Lange, Pl. Grönl. 133. Hook. Fl. Antarct. 1. 247.

SAPONARIA OFFICINALIS, Linn. Pursh, 314. Nutt. Genera, 1. 286. Elliott, 1. 514. Torrey, Fl. U. S. 447; Fl. N. Y. 1. 103. Bigel. Fl. Bost. 190. Darling. Fl. Cestr. 272. Torr. & Gray, Fl. 1. 195. Eat. & Wr. 411. Chapman, 52. Gray, Manual, 88.

S. VACCARIA, Linn. Torr. & Gray, Fl. 1. 195. Eat. & Wr. 411. Torrey, Fl. N. Y. 1. 103. Gray, Manual, 1 ed. 55. Watson, King's Rep. 5. 36; Pl. Wheel. 6. Porter, Hayd. Rep. 1871, 479; Fl. Col. 12. Coulter, Hayd. Rep. 1872, 761.

Vaccaria vulgaris, Host. Gray, Manual, 88.

SILENE acaulis. Linn. Spec. 2 ed. 603. See syn. in Ledeb. Fl. Ross. 1. 303; Rohrb. Monog. Silene, 143. — Pursh, 316. R. Br. in Ross's Voy. 142. Greville, Mem. Soc. Wern. 3. 429. Richards. Frankl. Journ. 10. Hook. Trans. Linn. Soc. 14. 365; Fl. Bor.-Am. 1. 87. Torrey, Ann. Lyc. N. Y. 2. 170; Frem. Rep. 87. Cham. & Schlecht. in Linn. 1. 39. Meyer, Pl. Lab. 90. Torr. & Gray, Fl. 1. 189. Hook. & Arn. Bot. Beechey, 122. Eat. & Wr. 426. Seem. Bot. Herald, 27, 51 & 56. Durand, Pl. Kane, 189. Hook. f. in Jour. Linn. Soc. 1. 116 & 121, & 5. 82; Arct. Pl. 287. Dickie, Jour. Linn. Soc. 3. 110. Gray, Am. Jour. Sci. 2. 33. 256; Proc. Acad. Philad. 1863, 58; Manual, 90. Pl. Bourgeau, 255 & 262. Rothr. Alask. 444; Pl Wheel. 35. Rohrb. l. c. **t. 1, f. 22–24.** Porter, Hayd. Rep. 1870, 473; 1871, 479; Fl. Col. 12. Watson, King's Rep. 5. 36 & 432; Pl. Wheel. 6. Coulter, Hayd. Rep. 1872, 761.

S. antirrhina. Linn. Spec. 419. Hill, Veg. Syst. 13, **t. 58, f. 4.** Ait. Hort. Kew. 2. 97. Walter, 141. Willd. Spec. 2. 702. Poir. Dict. 7. 176. Pursh, 316. Elliott, 1. 517. DC. Prodr. 1. 376. Torrey, Fl. U. S. 451; Fl. N. Y. 1. 101; Marcy's Rep. 281; Pac. R. Rep. 4. 69; Mex. Bound. 36; Bot. Wilkes, 241. Bigel. Fl. Bost. 194. Spreng. Syst. 2. 413. Hook. Fl. Bor.-Am. 1. 89; Jour. Bot. 1. 195;

Lond. Jour. Bot. 6. 75. Don, Mill. 1. 406. Darling. Fl. Cestr. 272. Torr. & Gray, Fl. 1. 191; Pac. R. Rep. 2. 160. Eat. & Wr. 426. Dietr. 2. 1574. Engelm. & Gray, Pl. Lindh. 5. Gray, Pl. Fendl. 13; Manual, 90; Hall's Pl. Tex. 5. Parry, Pl. Minn. 609. Engelm. Pl. Upp. Miss. 185. Chapman, 52. Lesqx. Fl. Ark. 351. Pl. Bourgeau, 255. Rohrb. Mon. Sil. 173; Mart. Fl. Bras. fasc. 56. 292, t. **66**, f. **1**. Boland. Cat. 6. Watson, King's Rep. 5. 36 & 432. Porter, Hayd. Rep. 1871, 479.

Saponaria dioica. Cham. & Schlecht. in Linn. 1. 38.

Var. **linaria.** Wood, Bot. & Fl. 53.

S. Armeria, Linn. Hook. Fl. Bor.-Am. 1. 91. Torr. & Gray, **Fl. 1. 194.** Gray, Manual, 90. Rohrb. l. c. 149.

S. Baldwinii. Nutt. Genera, 1. 288. DC. Prodr. 1. 382. Spreng. Syst. 2. 411. Don, Mill. 1. 413. Torr. & Gray, Fl. 1. 193. Eat. & Wr. 427. Dietr. 2. 1581. Chapman, 51. Wood, Cl.-Book, 255; Bot. & Fl. 53.

S. fimbriata. Baldw.; Elliott, 1. 515, not Sims.

Melandryum Baldwinii. Rohrb. Mon. Sil. 231 & 232; Syn. Lych. in Linn. 36. 254. Watson, King's Rep. 5. 431.

S. Bridgesii. Rohrb. Ind. Sem. Berol. 1867, Appx. 2. 5 (Ann. Sci. Nat. 5. 8. 431); Mon. Sil. 204. Watson, King's Rep. 5. 432; Proc. Am. Acad. 10. 342. Brew. & Wats. Bot. Calif. 1. 66.

Elisanthe Bridgesii. Ruprecht, Fl. Cauc. 1. 200.

S. Californica. Durand, Pl. Pratten. 83. Torrey, Pac. R. Rep. 4. 69 & 7. 8; Bot. Wilkes, 242. Walp. Ann. 4. 289. Boland. Cat. 6. Brew. & Wats. l. c. 64.

S. pulchra. Torr. & Gray, Fl. 1. 675, in part.

S. Virginica. Benth. Pl. Hartw. 299.

Melandryum pulchrum. Rohrb. Mon. Sil. 232 & 234, in part.

M. Californicum. Rohrb. in Linn. 36. 252. Watson, King's Rep. 5. 431.

S. Tilingi. Regel, Act. Hort. Petrop. 1. 99; Gartenfl. 1872, 330.

S. laciniata, var. *Californica.* Gray, Proc. Bost. Soc. 7. 146. Watson, Proc. Am. Acad. 10. 341.

S. campanulata. Watson, Proc. Am. Acad. 10. 341. Brew. & Wats. l. c. 63.

S. Douglasii. Hook. Fl. Bor.-Am. 1. 88. Don, Mill. 1. 414. Torr. & Gray, Fl. 1. 190. Eat. & Wr. 427. Dietr. 2. 1566. Walp. Rep. 1. 278. Rohrb. Mon. Sil. 80. Watson, King's Rep. 5. 36 & 431; Proc. Am. Acad. 10. 341. Anderson, Cat. 118. Coulter, Hayd. Rep. 1872, 761. Torrey, Bot. Wilkes, 241. Brew. & Wats. l. c.

Cucubalus Douglasii. Eaton, Manual, 7 ed.

Var. (?) Watson, King's Rep. 5. 36. Coulter, Hayd. Rep. 1872, 761 ?

S. Gallica, Linn. Hook. & Arn. Bot. Beechey, 326. Rohrb. Mon. Sil. 96. Boland. Cat. 6. Watson, Proc. Am. Acad. 11. 113. Brew. & Wats. l. c. 63.

S. quinquevulnera, Linn. Michx. Fl. 1. 272. Elliott, 1. 515. Torr. & Gray, Fl. 1. 191 & 675. Eat. & Wr. 427. Torrey, Pac. R. Rep. 4. 69; Mex. Bound. 36. Chapman, 52. Boland. Cat. 6. Wood, Bot. & Fl. 53.

S. Hookeri. Nutt.; Torr. & Gray, Fl. 1. 193. Eat. & Wr. 427. Dietr. 2. 1578. Walp. Rep. 1. 278. Hook. f. Bot. Mag. t. **6051.** Fl. Serres, t. **2093.** Watson, Proc. Am. Acad. 10. 341. Brew. & Wats. l. c. 64.

S. Bolanderi. Gray, Proc. Am. Acad. 7. 330 & 8. 378. Boland. Cat. 6.

Melandryum Hookeri & Bolanderi. Rohrb. Mon. Sil. 232; Linn. 36. 254. Watson, King's Rep. 5. 431.

S. incompta. Gray, Proc. Am. Acad. 7. 330. Watson, King's Rep. 5. 434; Proc. Am. Acad. 10. 341. Brew. & Wats. l. c. 65.

? *S. multicaulis.* Durand, Pl. Pratten. 84.

S. Engelmanni. Rohrb. in Ind. Sem. Berol. 1867, Appx. 2. 5 (Ann. Sci. Nat. 5. 8. 381); Mon. Sil. 213; Linn. 36. 264, excl. var.

S. INFLATA, Sm. Hook. Fl. Bor.-Am. 1. 88. Torr. & Gray, Fl. 1. 190. Eat. & Wr. 427. Hook. f. Arct. Pl. 287 & 321. Gray, Manual, 89. Leggett, Torr. Bull. 2. 25.

Cucubalus Behen, Linn. Michx. Fl. 1. 271. Pursh, 315. Bigel. Fl. Bost. 183. Torrey, Fl. U. S. 449.

S. Cucubalus, Wib. Rohrb. Mon. Sil. 85.

S. laciniata. Cav. Icon. 6. 44, t. **564.** DC. Prodr. 1. 383. Spreng. Syst. 2. 407. Don, Mill. 1. 413. Lindl. Bot. Reg. 17, t. **1444.** Paxton, Mag. Bot. 1. 267 & t. Maund, Bot. Gard. 11, t. **499.** Gray, Pl. Wright. 2. 17. Torrey, Pac. R. Rep. 4. 69. Fl. Serres, 2, t. **7.**

S. Mexicana & *Mociniana.* DC. Prodr. 1. 379 & 382. Don, Mill. 1. 410 & 413.

Lychnis pulchra. Cham. & Schlecht. in Linn. 5. 234. Hook. & Arn. Bot. Beechey, 326. Benth. Pl. Hartw. 35.

Agrostemma pulchra. Don, Mill. 1. 417.

S. pulchra. Torr. & Gray. Fl. 1. 675, in part. Walp. Rep. 1. 278. Torrey, Mex. Bound. 36.

S. speciosa. Paxton, Mag. Bot. 10. 219 & t.

Melandryum pulchrum. Rohrb. Mon. Sil. 234.

M. laciniatum. Rohrb. Mon. Sil. 233; Linn. 6. 255. Watson, King's Rep. 5. 431.

Var. **Greggii.**

Silene —— ? Engelm. in Wisliz. Rep. 22.

S. Greggii. Gray, Pl. Wright. 2. 17. Durand, Pl. Pratten. 83. Walp. Ann. 4. 289. Torrey, Mex. Bound. 36.

Melandryum laciniatum, var. *Greggii.* Rohrb. Mon. Sil. 232.

M. Greggii. Rohrb. in Linn. 36. 256. Watson, King's Rep. 5. 431.

S. Lemmoni. Watson, Proc. Am. Acad. 10. 342.

S. Lyallii. Watson, l. c.

S. Menziesii. Hook. Fl. Bor.-Am. 1. 90, t. **30**; Lond. Journ. Bot. 6. 75. Don, Mill. 1. 408. Torr. & Gray, Fl. 1. 193 & 676. Eat. & Wr. 427. Dietr. 2. 1574. Walp. Rep. 1. 278. Gray, Pl. Fendl. 13; Am. Journ. Sci. 2. 33. 405; Proc. Acad. Philad. 1863, 58; Proc. Am. Acad. 8. 378. Rohrb. Mon. Sil. 147. Anderson, Cat. 118. Watson, King's Rep. 36 & 432. Porter, Hayd. Rep. 1871, 479; Fl. Col. 12. Coulter, Hayd. Rep. 1872, 761. Torrey, Bot. Wilkes, 242. Rothr. Pl. Wheeler, 35.

S. stellarioides. Nutt.; Torr. & Gray, Fl. 1. 193. Eat. & Wr. 427. Dietr. 2. 1576. Walp. Rep. 1. 279.

S. Dorrii. Kellogg, Trans. Calif. Acad. 3. 44, f. **12.**

S. monantha. Watson, Proc. Am. Acad. 10. 340. Brew. & Wats. l. c. 63.

S. montana. Watson, l. c. 343. Brew. & Wats. l. c. 65.

S. multicaulis. Nutt.; Torr. & Gray, Fl. 1. 192 & 675. Eat. & Wr. 427. Dietr. 2. 1576.

S. nivea. DC. Prodr. 1. 377. Don, Mill. 1. 407. Torr. & Gray, Fl. 1. 190. Eat. & Wr. 427. Dietr. 2. 1574. Parry, Pl. Minn. 609. Rohrb. Mon. Sil. 87 & 236. Gray, Manual, 89. Watson, King's Rep. 5. 431.

S. alba. Muhl. Cat. 45.

Cucubalus niveus. Nutt. Genera, 1. 287. Torrey, Fl. U. S. 449.

S. NOCTIFLORA, Linn. Torr. & Gray, Fl. 1. 192. Torrey, Fl. N. Y. 1. 101. Gray, Manual, 90.

Melandryum noctiflorum, Fr. Rohrb. in Linn. 36. 242.

S. NOCTURNA, Linn. Pursh, 316. Torrey, Fl. U. S. 451. Bigel. Fl. Bost. 194. Torr. & Gray, Fl. 1. 191. Eat. & Wr. 426. Gray, Manual, 90. Rohrb. Mon. Sil. 100.

S. occidentalis. Watson, Proc. Am. Acad. 10. 343.

S. ovata. Pursh, 316. Poir. Suppl. 5. 156. Elliott, 1. 517. DC. Prodr. 1. 368. Spreng. Syst. 2. 414. Don, Mill. 1. 399. Torr. & Gray, Fl. 1. 190. Eat. & Wr. 427. Dietr. 2. 1566. Chapman, 51. Wood, Cl.-Book, 255; Bot. & Fl. 53. Rohrb. Mon. Sil. 222. Watson, King's Rep. 5. 432.

? *Cucubalus polypetalus.* Walter, 141.

S. Pennsylvanica. Michx. Fl. 1. 272. Poir. Dict. 7. 176; Suppl. 5. 149. Pursh, 316. Ker, Bot. Reg. 8, **t. 247.** Elliott, 1. 515. DC. Prodr. 1. 380. Torrey, Fl. U. S. 450; Fl. N. Y. 1. 101. Spreng. Syst. 2. 405. Hook. Fl. Bor.-Am. 1. 90. Don, Mill. 1. 411. Bigel. Fl. Bost. 194. Spach, Hist. Veg. 5. 179. Torr. & Gray, Fl. 1. 192. Eat. & Wr. 426. Dietr. 2. 1580. Gray, Genera, 2. 42, **t. 115**; Manual, 89. Chapman, 51. Hook. f. Arct. Pl. 287.

? *S. Caroliniana.* Walter, 142.

? *S. Virginica.* Willd. Spec. 2. 702.

S. cheiranthoides. Poir. Dict. 7. 176.

S. incarnata. Lodd. Cab. **t. 41.**

S. platypetala. Otth. in DC. Prodr. 1. 383. Don, Mill. 1. 413.

? *S. rubicunda.* Dietr. in Allg. Gartenzeit. 3. 196. Walp. Rep. 1. 279.

Melandryum Pennsylvanicum. Rohrb. Mon. Sil. 232 & 233; Linn. 36. 251. Watson, King's Rep. 5. 431.

S. regia. Sims, Bot. Mag. **t. 1724.** Poir. Suppl. 5. 155. Nutt. Genera, 1. 288. DC. Prodr. 1. 382. Spreng. Syst. 2. 411. Beck, Am. Jour. Sci. 11. 182. Don, Mill. 1. 413. Hook. Jour. Bot. 1. 195. Don, Sweet's Brit. Fl. Gard. 2 ser. **t. 313.** Spach, Hist. Veg. 5. 178. Maund, Bot. Gard. 13, **t. 609.** Torr. & Gray, Fl. 1. 193. Eat. & Wr. 427. Dietr. 2. 1581. Chapman, 51. Gray, Manual, 89.

S. Virginica, var. Michx. Fl. 1. 272.

Melandryum regium. Al. Braun, Regensb. Flora, 1843, 372. Rohrb. Mon. Sil. 234 & 235.

M. Illinoense. Rohrb. in Linn. 36. 250. Watson, King's Rep. 5. 431.

S. rotundifolia. Nutt. Genera, 1. 288. DC. Prodr. 1. 383. Spreng. Syst. 2. 406. Don, Mill. 1. 413. Torr. & Gray, Fl. 1. 192. Eat. & Wr. 427. Dietr. 2. 1582. Chapman, 51. Gray, Manual, 89.

Melandryum rotundifolium. Rohrb. Mon. Sil. 234; Linn. 36. 257. Watson, King's Rep. 5. 431.

S. Scouleri. Hook. Fl. Bor.-Am. 1. 88. Don, Mill. 1. 401. Torr. & Gray, Fl. 1. 191. Eat. & Wr. 427. Dietr. 2. 1567. Walp. Rep. 1. 278. Anderson, Cat. 118. Gray, Am. Jour. Sci. 2. 33. 405; Proc. Acad. Philad. 1863, 58. Cooper, Pac. R. Rep. 12. 57. Rohrb. Mon. Sil. 213. Watson, King's Rep. 5. 432. Porter, Fl. Col. 12. Torrey, Bot. Wilkes, 241.

Elisanthe Scouleri. Ruprecht, Fl. Cauc. 1. 200.

S. Drummondii. Gray, Proc. Am. Acad. 8. 377.

S. stellata. Ait. f. Hort. Kew. 3. 84. DC. Prodr. 1. 368. Spreng. Syst. 2. 415. Hook. Fl. Bor.-Am. 1. 88. Don, Mill. 1. 399. Darling. Fl. Cestr. 272. Torr. & Gray, Fl. 1. 190; Pac. R. Rep. 2. 126. Eat. & Wr. 426. Dietr. 2. 1566. Torrey, Fl. N. Y.

1. 100, t. **16.** Gray, Pl. Fendl. 14; Manual, 89. Parry, Pl. Minn. 608. Engelm. Pl. Upp. Miss. 185. Chapman, 51. Rohrb. Mon. Sil. 216. Watson, King's Rep. 5. 432.

Cucubalus stellatus. Linn. Spec. 414. Hill, Veg. Syst. 13, t. **58, f. 1.** Lam. Dict. 2. 221. Ait. Hort. Kew. 2. 92. Willd. Spec. 2. 687. Michx. Fl. 1. 271. Sims, Bot. Mag t. **1107.** Pursh, 315. Elliott, 1. 514. Torrey, Fl. U. S. 449. Bigel. Fl. Bost. 195. Spach, Hist. Veg. 5. 174.

S. verecunda. Watson, Proc. Am. Acad. 10. 344.

S. Virginica. Linn. Spec. 419, in part. Hill, Veg. Syst. 13, t. **58, f. 3.** Medicus, Bot. Beobacht. 1783, 167. Michx. Fl. 1. 272, in part. Poir. Dict. 7. 175. Ait. f. Hort. Kew. 3. 92. Pursh, 316. Elliott, 1. 516. DC. Prodr. 1. 379. Torrey, Fl. U. S. 450; Fl. N. Y. 1. 102. Spreng. Syst. 2. 411. Hook. Fl. Bor.-Am. 1. 90; Bot. Mag. t. **3342** (Ann. Sci. Nat. 2. 5. 293). Don, Mill. 1. 410. Spach, Hist. Veg. 5. 191. Lindl. Fl. Med. 201. Torr. & Gray, Fl. 1. 192. Eat. & Wr. 426. Dietr. 2. 1578. Walp. Rep. 1. 278. Chapman, 51. Gray, Manual, 89.

S. Catesbœi. Walter, 141. Willd. Spec. 2. 706. Poir. Dict. 7. 183. DC. Prodr. 1. 379. Don, Mill. 1. 410.

S. coccinea. Moench, Suppl. 306.

Melandryum Virginicum. A. Braun, Regensb. Flora, 1843, 372. Rohrb. Mon. Sil. 232 & 235; Linn. 36. 250. Watson, King's Rep. 5. 431.

S. Wrightii. Gray, Pl. Wright. 2. 17. Walp. Ann. 4. 289.

Melandryum Wrightii. Rohrb. Mon. Sil. 235; Linn. 36. 258. Watson, King's Rep. 5. 431.

S. alba; nivea.
axillaris; Cuphæa viscosissima.
Bolanderi; Hookeri.
Caroliniana & cheiranthoides; Pennsylvanica.
Catesbœi & coccinea; Virginica.
Cucubalus; inflata.
Dorrii; Menziesii.
Drummondii; Scouleri, verecunda, Lychnis Drummondii.
Engelmanni: incompta, verecunda.
fimbriata; Baldwinii.
Greggii; laciniata.
incarnata; Pennsylvanica.
S. laciniata: Californica.
Mexicana & Mociniana; laciniata.
multicaulis; incompta.
Nicæensis; verecunda.
platypetala; Pennsylvanica.
pulchra: laciniata, Californica.
quinquevulnera: Gallica.
Scouleri; Lychnis Drummondii & elata.
speciosa; laciniata.
stellarioides; Menziesii.
Tilingii; Californica.
Virginica: Californica, Pennsylvanica, regia.

SPERGULA ARVENSIS, Linn. Walter, 142. Pursh, 320. Elliott, 1. 523. Torrey, Fl. U. S. 457; Fl. N. Y. 1. 106. Hook. Fl. Bor.-Am. 1. 92; Jour. Bot. 1. 196. Bigel. Fl. Bost. 196. Torr. & Gray, Fl. 1. 174. Eat. & Wr. 439. Chapman, 48. Hook. f. Arct. Pl. 287. Rothr. Alask. 444. Gray, Manual, 96. Boland. Cat. 6. Rohrb. in Mart. Fl. Bras. fasc. 56. 263, t. **58, f. 3,** with syn.

SPERGULARIA. See *Lepigonum.*

STELLARIA borealis. Bigel. Fl. Bost. 2 ed. 182. See syn. in Fenzl, Ledeb. Fl. Ross. 1. 381; Regel, Fl. Ost-Sib. 1. 383 & 395. — Hook. Fl. Bor.-Am. 1. 94, excl. vars.; Lond. Jour. Bot. 6. 74. Torr. & Gray, Fl. 1. 185. Dietr. 2. 1556. Eat. & Wr. 442. Torrey, Fl. N. Y. 1. 98; Bot. Wilkes, 245. Vahl, Fl. Dan. 14, t. **2355.** Gray, Genera, 2. 38, t. **113, f. 6-8** (fruit); Proc. Acad. Philad. 1868, 59; Manual, 93; Proc. Am. Acad. 8. 378. Cooper, Pac. R. Rep. 12. 57. Lange, Pl. Grönl. 132.

Hook. f. Arct. Pl. 288 & 322. Pl. Bourgeau, 255. Rothr. Alask. 444. Porter, Hayd. Rep. 1870, 473; 1871, 479; Fl. Col. 13. Watson, King's Rep. 5. 38.

Spergulastrum lanceolatum. Michx. Fl. 1. 275. Poir. Dict. 7. 308. Don, Mill. 1. 448.

Micropetalon lanceolatum. Persoon, 1. 509. Pursh, 320. Spreng. Syst. 2. 416. Eat. & Wr. 319.

Arenaria or *Stellaria?* Bigel. in N. Eng. Med. Jour. 5. 334.

Stellaria lanceolata. Torrey, Fl. U. S. 453, not Poir.

Arenaria lateriflora. Darling. Florul. Cestr. 54.

S. calycantha. Bong. Sitch. 127. Torr. & Gray, Fl. 1. 186. Eat. & Wr. 443.

Arenaria calycantha. Ledeb. in Mem. Acad. Petr. 5. 354. DC. Prodr. 1. 412.

S. crassifolia. Boland. Cat. 6.

Var. alpestris. Gray, Manual, 93.

S. alpestris, Fries. Hook. f. Arct. Pl. 323, referring it to *S. longifolia.*

S. brachypetala. Bong. Sitch. 126 (Presl, Repert. Bot. 1. 312). Torr. & Gray, Fl. 1. 186. Eat. & Wr. 443. Dietr. 2. 1553.

S. borealis, var. *corollina.* Fenzl, Ledeb. Fl. Ross. 1. 382. Gray, Proc. Am. Acad. 8. 378.

S. longifolia. Pl. Bourgeau, 255, in part.

S. Fenzlii. Regel, Fl. Ost-Sib. 1. 399.

S. crassifolia. Ehrh. Beitr. 3. 60. See syn. in Fenzl, Ledeb. Fl. Ross. 1. 383; Regel, Fl. Ost-Sib. 1. 383 & 394. — Gray, Manual, 93. Hook. f. Arct. Pl. 288. Rothr. Alask. 444. Watson, King's Rep. 5. 417; Pl. Wheel. 6. Porter, Hayd. Rep. 1871, 479; Fl. Col. 13.

S. borealis, var. *β.* Hook. Fl. Bor.-Am. 1. 95.

? *Sagina fontinalis.* Short & Peter, Pl. Kentucky, Suppl. in Transylv. Jour. Med. 28. 600. Torr. & Gray, Fl. 1. 177. Eat. & Wr. 405.

? *Spergula fontinalis.* Dietr. 2. 1597.

S. crispa. Cham. & Schlecht. in Linn. 1. 51. Hook. Fl. Bor.-Am. 1. 87. Don, Mill. 1. 430. Bong. Sitch. 127. Torr. & Gray, Fl. 1. 186 & 675. Eat. & Wr. 443. Dietr. 2. 1555. Fenzl, Ledeb. Fl. Ross. 1. 382. Aschers. in Flora, 43. 370. Gray, Proc. Am. Acad. 8. 378. Referred to *S. borealis* by Hook. f. in Arct. Pl.

S. borealis, var. *apetala.* Regel, Fl. Ost-Sib. 1. 396, in part.

S. borealis, var. *crispa.* Torrey, Bot. Wilkes, 245.

S. dicranoides. Fenzl, Ledeb. Fl. Ross. 1. 395. Seem. Bot. Herald, 26, **t. 3.** Hook. f. Arct. Pl. 288. Regel, Fl. Ost-Sib. 1. 385 & 423.

Cherleria dicranoides. Cham. & Schlecht. in Linn. 1. 63. Spreng. Syst. 4. 183. Don, Mill. 1. 448.

S. humifusa. Rottb. in Act. Hafn. 10. 447, **t. 4, f. 14.** See syn. in Fenzl, Ledeb. Fl. Ross. 1. 384; Regel, Fl. Ost-Sib. 1. 383 & 398. — Richards. Frankl. Journ. 17. Hook. in Parry's 2d Voy. 391; Trans. Linn. Soc. 14. 367; Fl. Bor.-Am. 1. 97. Don, Mill. 1. 439. Bong. Sitch. 127. Torr. & Gray, Fl. 1. 184. Eat. & Wr. 442. Seem. Bot. Herald, 26. Durand, Pl. Kane, 188. Lange, Pl. Grönl. 132. Hook. f. in Jour. Linn. Soc. 5. 82; Arct. Pl. 288. Rothr. Alask. 444. Gray, Manual, 93. Dickie, Jour. Linn. Soc. 11. 33.

Arenaria thymifolia. Pursh, 317. Poir. Suppl. 5. 8. Meyer, Pl. Lab. 91. Eat. & Wr. 132. Dietr. 2. 1563.

A. Purshiana. Seringe, DC. Prodr. 1. 414. Hook. Fl. Bor.-Am. 1. 102. Dietr. 2. 1563.

S. marginata. Cham. & Schlecht. in Linn. 1. 50. Spreng. Syst. 4. 180. Don, Mill. 1. 430. Dietr. 2. 1555.

S. crassifolia. Cham. & Schlecht. l. c.

S. Jamesii. Torrey, Ann. Lyc. N. Y. 2. 169; Pac. R. Rep. 4. 69; Bot. Wilkes, 245. Don, Mill. 1. 428. Torr. & Gray, Fl. 1. 183. Eat. & Wr. 443. Dietr. 2. 1553. Gray, Proc. Acad. Philad. 1863, 59. Watson, King's Rep. 5. 38; Pl. Wheel. 6. Porter, Fl. Col. 13. Rothr. Pl. Wheel. 35.

? *S. graminea.* James, Cat. 181.

S. Kingii. Watson, King's Rep. 5. 39, **t. 6.** Brew. & Wats. Bot. Calif. 1. 68.

S. litoralis. Torrey, Pac. R. Rep. 4. 69. Boland. Cat. 6. Brew. & Wats. l. c.

S. longifolia. Muhl.; Willd. Enum. 479. See syn. in Fenzl, Ledeb. Fl. Ross. 1. 392; Koch, Fl. Germ. 103; Regel, Fl. Ost-Sib. 1. 384 & 406. — Muhl. Cat. 46. Eaton, Manual, 2 ed. 45. Poir. Suppl. 5. 243. DC. Prodr. 1. 400. Torrey, Fl. U. S. 452; Fl. N. Y. 1. 97; Bot. Wilkes, 245. Hook. Fl. Bor.-Am. 1. 94. Don, Mill. 1. 431. Bong. Sitch. 126. Bigel. Fl. Bost. 103. Darling. Fl. Cestr. 275. Torr. & Gray, Fl. 1. 185. Hook. & Arn. Bot. Beechey, 122. Dietr. 2. 1556. Gray, Genera, 2. 38, **t. 113, f. 1–5**; Am. Jour. Sci. 2. 33. 405; Manual, 92. Seem. Bot. Herald, 26 & 51. Parry, Pl. Minn. 609. Hook. f. Arct. Pl. 288 & 323. Pl. Bourgeau, 255, in part. Rothr. Alask. 444.

Spergulastrum gramineum. Michx. Fl. 1. 276. Poir. Dict. 7. 308. DC. Prodr. 1. 422. Don, Mill. 1. 448.

Micropetalon gramineum. Persoon, 1. 509. Pursh, 320. Dietr. 2. 1590.

S. graminea. Bigel. Fl. Bost. 1 ed. 110, not Linn. Richards. Frankl. Journ. 10. Spreng. Syst. 2. 394. Cham. & Schlecht. in Linn. 1. 49.

Micropetalon longifolium. Eat. & Wr. 319.

S. longipes. Goldie, Edinb. Phil. Jour. 6. 327. See syn. in Fenzl, Ledeb. Fl. Ross. 1. 386; Regel, Fl. Ost-Sib. 1. 384 & 414; Hook. f. Arct. Pl. 288 & 323. — DC. Prodr. 1. 400. Spreng. Syst. 2. 394. Hook. Fl. Bor.-Am. 1. 95; Lond. Jour. Bot. 6. 75. Don, Mill. 1. 431. Torr. & Gray, Fl. 1. 186. Eat. & Wr. 443. Dietr. 2. 1556. Torrey, Nicol. Rep. 146; Bot. Wilkes, 245. Seem. Bot. Herald, 26, 51, 55 & 56. Engelm. Pl. Upp. Miss. 186. Hook. f. in Jour. Linn. Soc. 1. 116 & 121, & 5. 82. Dickie, same, 3. 110, & 11. 33. Newberry, Pac. R. Rep. 6. 67. Gray, Proc. Acad. Philad. 1863, 59; Manual, 92. Pl. Bourgeau, 255 & 262. Rothr. Alask. 444; Pl. Wheel. 35. Anderson, Cat. 118. Watson, King's Rep. 5. 38. Porter, Hayd. Rep. 1871, 479; Fl. Col. 13. Coulter, Hayd. Rep. 1872, 762.

S. glauca. Meyer, Pl. Lab. 93, not With. Schlecht. in Linn. 10. 103. Hook. f. in Jour. Linn. Soc. 1. 116. Lange, Pl. Grönl. 132.

S. crassifolia. Watson, King's Rep. 5. 38.

S. longifolia. Rothr. Pl. Wheel. 35.

Var. **minor.** Hook. Fl. Bor.-Am. 1. 95. Torr. & Gray, Fl. 1. 186. Durand, Pl. Kane, 188.

S. palustris. Richards. Frankl. Journ. 10.

S. stricta. Richards. Frankl. 2d Journ. 15. Hook. Fl. Bor.-Am. 1. 96. Don, Mill. 1. 429. Hook. & Arn. Bot. Beechey, 326. Dietr. 2. 1554.

? *Micropetalon gramineum.* James, Cat. 181.

S. læta. Torrey, Ann. Lyc. N. Y. 2. 169.

S. longipes, var. *a. stricta.* Regel, Fl. Ost-Sib. 1. 415.

Var. (**læta**). Torr. & Gray, Fl. 1. 185. Durand, Pl. Kane, 188. Ascherson in Regensb. Flora, 43. 370.

S. læta. Richards. Frankl. Journ. 10. Hook. in Parry's 2d Voy. 390; Fl. Bor.-Am. 1. 96. Spreng. Syst. 4. 180. Don, Mill. 1. 430. Eat. & Wr. 443. Dietr. 2. 1555.

Var. (**Edwardsii**). Torr. & Gray, Fl. 1. 185. Durand, Pl. Kane, 188.

S. Edwardsii. R. Br. in Parry's 1st Voy. 271 & 308 (Regensb. Flora, 7², Beil. 78). Richards. Frankl. Journ. 10. Hook. in Parry's 2d Voy. 390; Trans. Linn. Soc. 14. 368; Fl. Bor.-Am. 1. 96, **t. 31.** Torrey, Ann. Lyc. N. Y. 2. 170. Cham. & Schlecht. in Linn. 1. 48. Spreng. Syst. 4. 180. Don, Mill. 1. 429. Schlecht. in Linn. 10. 103. Hook. & Arn. Bot. Beechey, 122. Dietr. 2. 1554. Hornem. Fl. Dan. 18, **t. 2290.** Lange, Pl. Grönl. 132.

S. nitida. Hook. in Scoresb. Greenl. 411; Lond. Jour. Bot. 6. 74. R. Br. in Parry's 1st Voy. 271 (Regensb. Flora, 7², Beil. 79). Cham. & Schlecht. in Linn. 1. 47. Spreng. Syst. 4. 180. Don, Mill. 1. 429. Dietr. 2. 1554.

Var. **peduncularis.** Fenzl, Ledeb. Fl. Ross. 1. 387. Regel, Fl. Ost-Sib. 1. 416.

S. peduncularis. Bunge; Ledeb. Fl. Alt. 2. 387; Icon. Fl. Ross. **t. 421.**

S. macropetala. Torr. & Gray, Fl. 1. 184. Eat. & Wr. 443. Dietr. 2. 1553.

Alsine macropetala. Gray, Genera, 2. 34.

S. MEDIA, Sm. Pursh, 317. Bigel., Fl. Bost. 193. Torrey, Fl. U. S. 452; Fl. N. Y. 1. 97; Mex. Bound. 37. Hook. Fl. Bor.-Am. 1. 94; Jour. Bot. 1. 196. Schlecht. in Linn. 6. 589. Bong. Sitch. 126. Darling. Fl. Cestr. 274. Torr. & Gray, Fl. 1. 183. Eat. & Wr. 442. Hook. & Arn. Bot. Beechey, 135. Seem. Bot. Herald, 51. Lange, Pl. Grönl. 132. Chapman, 50. Hook. f. Arct. Pl. 288. Regel, Fl. Ost-Sib. 1. 389. Rothr. Alask. 444. Gray, Manual, 92; Proc. Am. Acad. 8. 378. Boland. Cat. 6. Rohrb. in Mart. Fl. Bras. fasc. 56. 276, **t. 64, f. 2.**

Holosteum succulentum. Linn. Amœn. 3. 21. Hill, Veg. Syst. 14. 25, **t. 17, f. 2.** Willd. Spec. 1. 89. Poir. Suppl. 3. 56. Pursh, 90. Röm. & Schult. Syst. 2. 857. Nutt. Genera, 1. 89. DC. Prodr. 1. 393. Torrey, Fl. U. S. 159. Spreng. Syst. 1. 362. Don, Mill. 1. 424. Dietr. 1. 415.

Alsine media, Linn. Walter, 117.

S. nitens. Nutt.; Torr. & Gray, Fl. 1. 185 & 675. Eat. & Wr. 443. Dietr. 2. 1553. Torrey, Pac. R. Rep. 4. 69; Mex. Bound. 37; Bot. Wilkes, 245. Newberry, Pac. R. Rep. 6. 67. Cooper, same, 12. 57. Gray, Proc. Am. Acad. 8. 378.

S. moenchioides. Fenzl, Ann. Mus. Wien, 1. 18.

S. stricta. Hook. Fl. Bor.-Am. 1. 96, in part.

S. Nuttallii. Torr. & Gray, Fl. 1. 183. Eat. & Wr. 443. Dietr. 2. 1553. Fielding, Sert. Pl. **t. 18.** Gray, Hall's Pl. Tex. 5.

Alsine Drummondii. Fenzl, Ann. Mus. Wien, 1. 18.

Alsine Nuttallii. Gray, Genera, 2. 34.

S. prostrata. Baldw.; Elliott, 1. 518. Torr. & Gray, Fl. 1. 183. Eat. & Wr. 443. Dietr. 2. 1553. Gray, Pl. Lindh. 152; Pl. Wright. 2. 17; Hall's Pl. Tex. 5. Chapman, 50. Wood, Cl.-Book, 258; Bot. & Fl. 55.

S. pubera. Michx. Fl. 1. 273. Poir. Dict. 7. 415. Pursh, 317. Nutt. Genera, 1. 289. Elliott, 1. 517. Torrey, Fl. U. S. 452. Spreng. Syst. 2. 392. Don, Mill. 1. 428. Darling. Fl. Cestr. 274. Torr. & Gray, Fl. 1. 183. Eat. & Wr. 442. Dietr. 2. 1553. Chapman, 50. Gray, Manual, 92.

S. ruscifolia. Willd.; Schlecht. in Berl. Mag. 1826, 194. Regel, Fl. Ost-Sib. 1. 385 & 419, with syn.

S. uliginosa. Murr. Comm. Gött. 1778, 55. See syn. in Fenzl, Ledeb. Fl. Ross. 1. 393; Regel, Fl. Ost-Sib. 383 & 400. — Eat. & Wr. 442. Hook. f. Arct. Pl. 288. Gray, Manual, 92. Matthew, Pl. Acadia, 15.

S. Alsine (*uliginosa*). Muhl. Cat. 46.

S. aquatica, Poll. Cham. & Schlecht. in Linn. 1. 50. Torr. & Gray, Fl. 1. 186. Gray, Manual, 1 ed. 62.

Larbræa uliginosa. Hook. Fl. Bor.-Am. 1. 93. Hook. f. in Jour. Linn. Soc. 1. 116.

? *S. gracilis.* Richards. Frankl. Journ. 10. Spreng. Syst. 4. 180. Hook. Fl. Bor.-Am. 1. 97. Don, Mill. 1. 430. Torr. & Gray, Fl. 1. 184. Eat. & Wr. 443. Dietr. 2. 1555. Aschers. in Regensb. Flora, 43. 370. Referred to *S. umbellata* by Planchon in Hook. f. Arct. Pl. 323.

S. borealis. Darling. Fl. Cestr. 274.

S. umbellata. Turcz. Cat. Baic.; Fl. Baic.-Dahur. 1. 236. Fenzl, Ledeb. Fl. Ross. 1. 394. Hook. f. Arct. Pl. 323. Regel, Fl. Ost-Sib. 1. 383 & 399. Gray, Proc. Acad. Philad. 1863, 59. Watson, King's Rep. 5. 38. Porter, Fl. Col. 13.

S. borealis, var. γ. Hook. Fl. Bor.-Am. 1. 94.

S. uniflora. Walter, 141. Torr. & Gray, Fl. 1. 184. Eat. & Wr. 443. Chapman, 50. Wood, Cl.-Book, 258; Bot. & Fl. 55.

Arenaria glabra. Elliott, 1. 520, not Michx. Wood, Bot. & Fl. 56.

Alsine Walteri. Gray, Genera, 2. 34.

S. alpestris; borealis.
Alsine & aquatica; uliginosa.
biflora; Arenaria lateriflora.
borealis; crassifolia, crispa, uliginosa, umbellata.
brachypetala & calycantha; borealis.
cerastioides; Cerastium trigynum.
crassifolia; borealis, humifusa, longipes.
Edwardsii; longipes.
elongata; Arenaria lanuginosa.
Fenzlii; borealis.
glauca; longipes.
gracilis; uliginosa.
S. graminea; longifolia, Jamesii.
Grœnlandica & Labradorica; Arenaria Grœnlandica.
læta; longipes.
lanceolata; borealis.
lanuginosa; Arenaria lanuginosa.
longifolia; borealis, longipes.
marginata; humifusa.
moenchioides; nitens.
nitida; longipes.
ovalifolia; Arenaria physodes.
palustris & peduncularis; longipes.
stricta; longipes, nitens.

STIPULICIDA setacea. Michx. Fl. 1. 26, **t. 6.** Poir. Dict. 7. 456. Nutt. Genera, 1. 29. Elliott, 1. 51. DC. Prodr. 3. 375. Don, Mill. 3. 92. Torr. & Gray, Fl. 1. 173. Dietr. 1. 177. Eat. & Wr. 444. Gray, Genera, 2. 26, **t. 107.** Chapman, 47. Wood, Cl.-Book, 262; Bot. & Fl. 57. Young, Fl. Texas, 174.

Polycarpon stipulicidum. Persoon, 1. 111. Pursh, 190. Röm. & Schult. Syst. 2. 859. Spreng. Syst. 1. 863.

PARONYCHIEÆ.

ACHYRONYCHIA Cooperi. Gray, Proc. Am. Acad. 7. 330.

ANYCHIA dichotoma. Michx. Fl. 1. 113. Juss. Ann. Mus. Par. 2. 133. Ait. f. Hort. Kew. 1. 185. Pursh, 176. Röm. & Schult. Syst. 5. 523. Torrey, Fl. U. S. 273; Fl. N. Y. 1. 105. Spreng. Syst. 1. 822. DC. Prodr. 3. 369. Hook. Comp. Bot. Mag. 1. 46. Don, Mill. 3. 88. Torr. & Gray, Fl. 1. 172. Dietr. 1. 872. Eat. & Wr. 128. Nutt. Fl. Ark. 166. Gray, Pl. Fendl. 14; Manual, 96. Chapman, 46.

Queria Canadensis. Nutt. Genera, 1. 158. James, Long's Exped. 1. 317. Barton, Comp. Fl. Phil. 1. 74. Bigel. Fl. Bost. 105.

Queria dichotoma. Moench, Meth. 351.

Anychia Canadensis. Elliott, 1. 307. Hook. Fl. Bor.-Am. 1. 226.

Paronychia dichotoma. Fenzl; Walp. Rep. 1. 262.

Paronychia Canadensis. Wood, Cl.-Book, 262.

Var. **capillacea.** Torrey, ll. cc. Torr. & Gray, l. c. Gray, Genera, 2. 20, **t. 104.**

Queria Canadensis. Linn. Spec. 90. Hill, Veg. Syst. 26, **t. 26, f. 8.** Willd. Spec. 1. 494; Enum. 137. Orteg. Dec. **t. 15, f. 2.** Poir. Dict. 6. 33. Persoon, 1. 112. Ait. f. Hort. Kew. 1. 185.

Queria capillacea. Nutt. Genera, 1. 159. Barton, Comp. Fl. Phil. 1. 74.

A. capillacea. DC. Prodr. 3. 369. Don, Mill. 3. 88. Dietr. 1. 872. Nutt. Fl. Ark. 166. Engelm. in Am. Journ. Sci. 2. 46. 95.

PARONYCHIA argyrocoma. Nutt. Genera, 1. 160. Spreng. Syst. 1. 822. DC. Prodr. 3. 372. Don, Mill. 3. 89. Torr. & Gray, Fl. 1. 171. Dietr. 1. 872. Eat. & Wr. 343. Gray, Genera, 2. 22, **t. 105**; Manual, 96. Chapman, 46.

Anychia argyrocoma. Michx. Fl. 1. 113. Poir. Suppl. 1. 404. Pursh, 176. Röm. & Schult. Syst. 5. 523. Elliott, 1. 308, in part.

Queria argyrocoma. Eaton, Manual, 7 ed.

P. Baldwinii. Fenzl; Walp. Rep. 1. 262. Chapman, 46. Wood, Cl.-Book, 262; Bot. & Fl. 58.

Anychia Baldwinii. Torr. & Gray, Fl. 1. 172. Eat. & Wr. 128.

P. dichotoma. Nutt. Genera, 1. 159. DC. Prodr. 3. 372. Don, Mill. 3. 89. Torr. & Gray, Fl. 1. 171. Dietr. 1. 871. Nutt. Fl. Ark. 166. Engelm. & Gray, Pl. Lindh. 33. Gray, Pl. Lindh. 152; Manual, 96. Torrey, Pac. R. Rep. 4. 70. Chapman, 46.

Achyranthes dichotoma. Linn. Mant. 1. 51. Willd. Spec. 1. 1106. Poir. Suppl. 2. 11.

Illecebrum dichotomum. Pursh, 446.

Anychia argyrocoma. Elliott, 1. 308, in part.

Paronychia Virginica. Spreng. Syst. 1. 822. Dietr. 1. 872.

Plotzia dichotoma. Arn.; Lindl. Nat. Syst. 2 ed. 441.

P. Drummondii. Torr. & Gray, Fl. 1. 170. Eat. & Wr. 343. Walp. Rep. 1. 261. Engelm. & Gray, Pl. Lindh. 5. Young, Fl. Tex. 173. Gray, Hall's Pl. Tex. 5.

P. herniarioides. Nutt. Genera, 1. 160. Spreng. Syst. 1. 822. DC. Prodr. 3. 371. Don, Mill. 3. 89. Torr. & Gray, Fl. 1. 171. Dietr. 1. 872. Eat. & Wr. 343. Chapman, 46. Wood, Cl.-Book, 262; Bot. & Fl. 57.

Anychia herniarioides. Michx. Fl. 1. 113. Poir. Suppl. 1. 404. Pursh, 176. Röm. & Schult. Syst. 5. 523. Elliott, 1. 308.

A. Herniariæ. Persoon, 1. 261.

P. Jamesii. Torr. & Gray, Fl. 1. 170; Pac. R. Rep. 2. 126 & 160. Eat. & Wr. 343. Walp. Rep. 1. 262. Gray, Pl. Fendl. 14; Pl. Wright. 1. 13 & 2. 19; Proc. Acad. Philad. 1863, 58. Hook. in Lond. Jour. Bot. 6. 231. Torrey, Marcy's Rep. 281; Mex. Bound. 37. Engelm. Pl. Upp. Miss. 186. Porter, Hayd. Rep. 1870, 473; Fl. Col. 119. Rohrb. in Linn. 27. 212.

P. dichotoma. Torrey, Ann. Lyc. N. Y. 2. 290.

Var. **depressa.** Torr. & Gray, Fl. 1. 171.

P. Lindheimeri. Engelm.; Gray, Pl. Lindh. 152; Pl. Wright. 1. 13 & 2. 19. Walp. Ann. 2. 90. Torrey, Mex. Bound. 37.

P. pulvinata. Gray, Am. Jour. Sci. 2. 34. 256; Proc. Acad. Philad. 1868, 58. Watson, King's Rep. 5. 298. Porter, Fl. Col. 119.

P. sessiliflora. Nutt. Genera, 1. 160. Spreng. Syst. 1. 821. DC. Prodr. 3. 372. Hook. Fl. Bor.-Am. 1. 226, **t. 75.** Don, Mill. 3. 89, **f. 22.** Torr. & Gray, Fl. 1. 170.

Dietr. 1. 871. Eat. & Wr. 343. Gray, Pl. Fendl. 14. Engelm. Pl. Upp. Miss. 186. Torrey, Pac. R. Rep. 4. 70. Pl. Bourgeau, 255. Porter, Hayd. Rep. 1870, 473; 1871, 479.

Queria sessiliflora. Eaton, Manual, 7 ed.

P. setacea. Torr. & Gray, Fl. 1. 170. Eat. & Wr. 343. Walp. Rep. 1. 261. Engelm. & Gray, Pl. Lindh. 5. Gray, same, 152; Hall's Pl. Tex. 5.

PENTACÆNA ramosissima. Hook. & Arn.; Hook. Bot. Misc. 3. 338, with syn. Walp. Rep. 1. 261. Gay, Fl. Chili, 2. 523. Torrey, Bot. Wilkes, 247.

Læflingia ramosissima. Weinm. in Regensb. Flora, 1820, 608. Röm. & Schult. Syst. Mant. 1. 335.

Paronychia ramosissima. DC. Mem. Paronych. 12, t. 4; Prodr. 3. 372. Torr. & Gray, Fl. 1. 172. Eat. & Wr. 343. Torrey, Pac. R. Rep. 4. 70; Mex. Bound. 37. Cooper, Pac. R. Rep. 12. 56. Boland. Cat. 6.

Pentacœna polycnemoides. Bartl. in Presl, Rel. Haenk. 2. 5, t. 49, f. 1.

Acanthonychia ramosissima. Rohrb. in Mart. Fl. Bras. fasc. 56. 249, t. 56.

SCLERANTHUS ANNUUS, Linn. Bigel. Fl. Bost. 188. Pursh, 315. Torrey, Fl. U. S. 448; Fl. N. Y. 1. 108. Gray, Genera, 2. 16, t. 102; Manual, 96.

SIPHONYCHIA Americana. Torr. & Gray, Fl. 1. 173. Eat. & Wr. 429. Gray, Genera, 2. 18, t. 103. Chapman, 47. Wood, Cl.-Book, 263; Bot. & Fl. 58. Young, Fl. Tex. 174.

Herniaria Americana. Nutt. in Am. Jour. Sci. 5. 291, excl. syn. DC. Prodr. 3. 368. Don, Mill. 3. 87.

Paronychia Americana. Fenzl; Walp. Rep. 1. 262.

P. urceolata. Shuttlw. in Herb.

S. diffusa. Chapman, 47. Wood, Bot. & Fl. 58.

S. erecta. Chapman, 47. Wood, Bot. & Fl. 58.

S. Rugelii. Chapman, 47. Wood, Bot. & Fl. 58.

Paronychia Rugelii. Shuttlw. in Herb.

PORTULACACEÆ.

CALANDRINIA Breweri. Watson, Proc. Am. Acad. 11. 124. Brew. & Wats. Bot. Calif. 1. 74.

C. Menziesii, var. *macrocarpa.* Gray, Proc. Calif. Acad. 3. 102.

C. maritima. Nutt.; Torr. & Gray, Fl. 1. 197. Eat. & Wr. 164. Walp. Rep. 2. 235. Torrey, Mex. Bound. 37. Brew. & Wats. l. c. 75.

C. Menziesii. Hook.; Torr. & Gray, l. c. Hook. & Arn. Bot. Beechey, 344. Eat. & Wr. 164. Walp. l. c. Torrey, Pac. R. Rep. 4. 70 & 7. 8; Mex. Bound. 37; Bot. Wilkes, 248. Newberry, Pac. R. Rep. 6. 68. Cooper, same, 12. 57. Gray, Proc. Bost. Soc. 7. 146. Boland. Cat. 6. Watson, l. c. 113. Brew. & Wats. l. c. 74.

Talinum Menziesii. Hook. Fl. 1. 223, t. 70. Don, Mill. 2. 77. Dietr. 3. 23.

C. speciosa. Lindl. Bot. Reg. 19, t. 1598. Torr. & Gray, Fl. 1. 197. Eat. & Wr. 164. Wood, Bot. & Fl. 59.

C. elegans. Spach, Hist. Veg. 5. 232.

C. pulchella. Lilja in Linn. 17. 109.

C. Nevadensis. Gray, Proc. Am. Acad. 8. 623. Brew. & Wats. l. c. 75.

Talinum pygmæum. Watson, King's Rep. 5. 42, in part.

C. pygmæa. Gray, l. c. Porter, Fl. Col. 14. Brew. & Wats. l. c.

Talinum pygmæum. Gray, Am. Journ. Sci. 2. 33. 407 (Bull. Bot. Soc. France,

9. 679); Proc. Acad. Philad. 1863, 59; Proc. Am. Acad. 7. 332. Watson, King's Rep. 5. 42, in part. Coulter, Hayd. Rep. 1872, 762. Rothr. Pl. Wheel. 35.

CALYPTRIDIUM monandrum. Nutt.; Torr. & Gray, Fl. 1. 198. Fenzl, Ann. Mus. Wien, 2. 298. Eat. & Wr. 167. Walp. Rep. 5. 787. Gray, Ives's Rep. 8.

C. roseum. Watson, King's Rep. 5. 44, t. 6. Parry, Amer. Naturalist, 8. 10.

CLAYTONIA acutifolia. Willd.; Röm. & Schult. Syst. 5. 436, not Ledeb. Fl. Alt. Fenzl, Ledeb. Fl. Ross. 3. 147, with syn. Cham. in Linn. 6. 560.

C. arctica. Adams, Mem. Soc. Mosc. 5. 94. DC. Prodr. 3. 361. Cham. in Linn. 6. 559. Fenzl, Ledeb. Fl. Ross. 3. 148. Trautv. Pl. Middend. 46, with syn. Gray, Am. Jour. Sci. 2. 33. 407. Hook. f. Arct. Pl. 291 & 328, referring it with *C. sarmentosa* to *C. lanceolata*.

C. Jouxneana. Röm. & Schult. Syst. 5. 434. Fenzl, Ledeb. Fl. Ross. 3. 148.

C. acutifolia. Ledeb. Fl. Alt. 1. 253; Icon. t. 272.

C. Caroliniana. Michx. Fl. 1. 160. Persoon, 1. 253. Poir. Suppl. 2. 295. Ait. f. Hort. Kew. 2. 53. Haw. Syn. Pl. Succ. 11. Röm. & Schult. Syst. 5. 433. Elliott, 1. 307. Spreng. Syst. 1. 791. Sweet, Brit. Fl. Gard. t. 208. Don, Mill. 2. 81. Spach, Hist. Veg. 5. 236. Torr. & Gray, Fl. 1. 199. Eat. & Wr. 199. Walp. Rep. 2. 237. Torrey, Fl. N. Y. 1. 110. Chapman, 44. Gray, Manual, 98. Matthew, Pl. Acadia. 20.

C. Virginica, var. *latifolia.* Solander in Ait. Hort. Kew. 1. 284? Willd. Spec. 1. 1185. Torrey, Fl. U. S. 1. 259. Eat. & Wr. 198.

C. spatulæfolia. Salisb. Parad. Lond. 2, t. 71. Ait. f. Hort. Kew. 2. 53. Pursh, 175. Poir. Suppl. 5. 622. Nutt. Genera, 1. 152.

C. Virginica, var. *spathulæfolia.* DC. Prodr. 3. 361. Hook. Fl. Bor.-Am. 1. 224.

C. spatulata. Eaton, Manual, 4 ed. Bigel. Fl. Bost. 2 ed. 98.

Var. **sessilifolia.** Torrey, Pac. R. Rep. 4. 70; Bot. Wilkes, 248. Watson, Pl. Wheeler, 6. Brew. & Wats. Bot. Calif. 1. 76.

C. lanceolata. Pursh, 175, t. 3, mostly. Poir. Suppl. 5. 622. Roem. & Schult. Syst. 5. 433. DC. Prodr. 3. 361. Spreng. Syst. 1. 791. Hook. Fl. Bor.-Am. 1. 224; Lond. Jour. Bot. 6. 229. Don, Mill. 3. 81. Torr. & Gray, Fl. 1. 199. Dietr. 1. 812. Eat. & Wr. 199. Fenzl, Ledeb. Fl. Ross. 2. 147. Gray, Ives's Rep. 7; Am. Jour. Sci. 2. 33. 406. Hook. f. Arct. Pl. 291 & 328.

? *C. alsinoides.* James, Cat. 177.

C. Caroliniana. Gray, Am. Jour. Sci. 2. 33. 407.

C. Caroliniana, var. *lanceolata.* Watson, King's Rep. 5. 42. Porter, Hayd. Rep. 1871, 479; Fl. Col. 14. Coulter, Hayd. Rep. 1872, 763.

C. Chamissonis. Esch.; Spreng. Syst. 1. 790. Cham. & Schlecht. in Linn. 6. 562. Torr. & Gray, Fl. 1. 676. Walp. Rep. 2. 237. Fenzl, Ledeb. Fl. Ross. 2. 151. Hook. in Lond. Jour. Bot. 6. 230. Cooper, Pac. R. Rep. 12. 57. Gray, Proc. Acad. Philad. 1863, 59; Proc. Am. Acad. 8. 378. Rothr. Alask. 446. Watson, King's Rep. 5. 43. Porter, Hayd. Rep. 1871, 479; Fl. Col. 15. Coulter, Hayd. Rep. 1872, 762. Torrey, Bot. Wilkes, 249.

C. stolonifera. C. A. Meyer, Mem. Soc. Mosc. 7. 139, t. 3. Don, Mill. 3. 82.

C. aquatica. Nutt.; Torr. & Gray, Fl. 1. 201. Eat. & Wr. 199. Walp. Rep. 2. 238. Boland. Cat. 6.

C. flagellaris. Bong. Sitch. 137 (Presl, Repert. Bot. 1. 314). Torr. & Gray, Fl. 1. 201. Eat. & Wr. 199. Walp. Rep 2. 238. Fenzl, Ledeb. Fl. Ross. 2. 149. Rothr. Alask. 446.

Var. **tenerrima.** Gray, Proc. Am. Acad. 8. 378.

C. dichotoma. Nutt.; Torr. & Gray, Fl. 1. 202. Eat. & Wr. 199. Walp. 2. 238. Gray, Pl. Fendl. 14. Cooper, Pac. R. Rep. 12. 57.

C. diffusa. Nutt.; Torr. & Gray, Fl. 1. 202. Eat. & Wr. 199. Walp. Rep. 2 Gray, Proc. Am. Acad. 8. 378. Brew. & Wats. Bot. Calif. 1. 76.

C. exigua. Torr. & Gray, Fl. 1. 200. Eat. & Wr. 199. Walp. Rep. 2. 237. Pl. Fendl. 14. Boland. Cat. 6.

C. tenuifolia. Torr. & Gray, Fl. 1. 201. Hook. & Arn. Bot. Beechey, 344. & Wr. 199. Walp. Rep. 2. 238. Torrey, Pac. R. Rep. 4. 71.

C. spathulata, var. Hook. & Arn. Bot. Beechey, 344.

C. perfoliata, var. *exigua.* Torrey, Pac. R. Rep. 4. 71. Brew. & Wats. l. c.

C. linearis. Dougl.; Hook. Fl. Bor.-Am. 1. 222, **t. 71**; Lond. Journ. Bot. 6 Don, Mill. 3. 82, **f. 20.** Torr. & Gray, Fl. 1. 202. Eat. & Wr. 199. Walp. 2. 238. Torrey, Pac. R. Rep. 4. 71; Bot. Wilkes, 249. Boland. Cat. 6. Co Hayd. Rep. 1872, 762. Gray, Proc. Am. Acad. 8. 378. Brew. & Wats. l. c.

? *C. spathulata.* Hook. in Lond. Journ. Bot. 6. 230.

C. megarrhiza. Parry, in Herb. Gray.

C. arctica, var. (?) *megarrhiza.* Gray, Am. Journ. Sci. 2. 33. 406; Proc. Philad. 1863, 59. Walp. Ann. 7. 320. Watson, King's Rep. 5. 43. Porter, Fl 15. Rothr. Pl. Wheel. 35.

C. Nevadensis. Watson, Bot. Calif. 1. 77.

C. parvifolia. Moç.; DC. Prodr. 3. 361. Don, Mill. 3. 82. Dietr. 1. 821. & Gray, Fl. 1. 201. Eat. & Wr. 199. Walp. Rep. 2. 238. Newberry, Pac. R. 6. 68. Cooper, same, 12. 57. Boland. Cat. 6. Gray, Proc. Am. Acad. 8 Torrey, Bot. Wilkes, 249.

C. filicaulis. Dougl.; Hook. Fl. Bor.-Am. 1. 222, **t. 72.** Don, Mill. 3. 82.

C. perfoliata. Donn, Ind. Hort. Cantab. 4 ed. 50. Willd. Spec. 1. 1186; I 268. "Jacq. Fragm. **t. 51.**" Persoon, 1. 253. Sims, Bot. Mag. **t. 1336.** Suppl. 2. 294. Ait. f. Hort. Kew. 2. 54. DC. Cat. Monsp. 97; Prodr. 3 Pursh, 176. Röm. & Schult. Syst. 5. 435. Spreng. Syst. 1. 791. Hook. Fl. Am. 1. 225; Lond. Jour. Bot. 6. 230. Don, Mill. 3. 81. Spach, Hist. Veg. Fisch. & Mey. Ind. Sem. Petr. 3. 32 (Linn. Litt.-Ber. 1838, 92). Torr. & Gra 1. 200. Dietr. 1. 821. Eat. & Wr. 199. Belg. Hortic. 1, **t. 58.** Torrey, P Rep. 4. 70 & 7. 8; Mex. Bound. 38; Bot. Wilkes, 248. Newberry, Pac. R. 6. 68. Cooper, same, 12. 57. Gray, Ives's Rep. 7; Proc. Bost. Soc. Nat. Hist. Boland. Cat. 6. Anderson, Cat. 118. Watson, King's Rep. 5. 43. Porter, Rep. 1871, 479. Coulter, same, 1872, 762.

C. Cubensis. Bonpl. in Ann. Mus. 7. 82, **t. 6**; Pl. Æquin. **t. 26.**

Limnia perfoliata. Haw. Succ. Syn. 12.

Var. **parviflora.** Torrey, Pac. R. Rep. 4. 71; Mex. Bound. 38. Gray, Proc Acad. 8. 378.

C. parviflora. Dougl.; Hook. Fl. Bor.-Am. 1. 225, **t. 73.** Don, Mill. **f. 19.** Torr. & Gray, Fl. 1. 200. Eat. & Wr. 198. Walp. Rep. 2. 237. C Pac. R. Rep. 12. 57.

C. gypsophiloides. Fisch. & Mey. Ind. Sem. Petr. 2. 8 (Hook. Comp. Bot. 2. 7; Linn. Litt.-Ber. 1837, 101; Ann. Sci. Nat. 2. 5. 187). Don, Sweet's Br Gard. 2 ser. **t. 375.** Torr. & Gray, Fl. 1. 200. Eat. & Wr. 199. Walp. 2. 238. Regel, Sert. Petr. **t. 34.**

Var. (**spathulata**). Torrey, Pac. R. Rep. 4. 71. Brew. & Wats. l. c.

C. spathulata. Dougl.; Hook. Fl. Bor.-Am. 1. 225, **t. 74.** Don, Mill.

Torr. & Gray, Fl. 1. 200. Eat. & Wr. 199. Walp. Rep. 2. 237. Gray, Pl. Fendl. 14. Cooper, Pac. R. Rep. 12. 57.

C. sarmentosa. C. A. Meyer, Mem. Soc. Mosc. 7. 137, **t. 3.** Don, Mill. 3. 81. Fenzl, Ledeb. Fl. Ross. 2. 149. Seem. Bot. Herald, 27, **t. 5.** Rothr. Alask. 446. Referred with *C. arctica* to *C. lanceolata* by Hook. f. Arct. Pl. 328.

C. Chamissoi. DC. Prodr. 3. 361. Dietr. 1. 821.

C. arctica, vars. Cham. & Esch. in Linn. 6. 559.

C. Festiana. Fisch.; Don, Mill. 3. 82.

C. lanceolata. Hook. & Arn. Bot. Beechey, 123 & 344.

? *C. Virginica.* Hook. & Arn. l. c. 123.

C. Sibirica. Linn. Spec. 204. See syn. in Fenzl, Ledeb. Fl. Ross. 2. 149. — Sims, Bot. Mag. **t. 2243.** Sweet, Brit. Fl. Gard. **t. 16.** Röm. & Schult. Syst. 5. 435. DC. Prodr. 3. 361. Torr. & Gray, Fl. 1. 676. Gray, Am. Jour. Sci. 2. 38. 407; Proc. Am. Acad. 8. 378. Rothr. Alask. 446. Boland. Cat. 6.

C. alsinoides. Sims, Bot. Mag. **t. 1309.** Pursh, 175. Poir. Suppl. 5. 622. Röm. & Schult. Syst. 5. 434. Spreng. Syst. 1. 790. DC. Prodr. 3. 360. Hook. Fl. Bor.-Am. 1. 225; Lond. Jour. Bot. 6. 230. Bong. Sitch. 136. Cham. in Linn. 6. 559. Don, Mill. 3. 81. Spach, Hist. Veg. 5. 235. Torr. & Gray, Fl. 1. 199 & 676. Dietr. 1. 812. Eat. & Wr. 199. Walp. Rep. 2. 237. "Baxter, Brit. Bot. 4, t. 253." C. A. Meyer, Ind. Sem. Petr. 11. 54. Paxton, Fl. Gard. 3. 91, **f. 296.** Torrey, Pac. R. Rep. 4. 70; Bot. Wilkes, 249. Newberry, Pac. R. Rep. 6. 67. Cooper, same, 12. 57.

Limnia Sibirica & alsinoides. Haw. Syn. Pl. Succ. 11.

C. Unalaschkensis. Fisch.; Röm. & Schult. Syst. 5. 434. DC. Prodr. 3. 361. Hook. Fl. Bor.-Am. 1. 225. Don, Mill. 3. 81. Dietr. 1. 812.

? *C. asarifolia.* Bong. Sitch. 137 (Presl, Repert. Bot. 1. 314). Torr. & Gray, Fl. 1. 200. Eat. & Wr. 198. Walp. Rep. 2. 237. Fenzl, Ledeb. Fl. Ross. 2. 150.

C. umbellata. Watson, King's Rep. 5. 43, **t. 6.**

C. Virginica. Linn. Spec. 204. Hill, Veg. Syst. 14, **t. 9, f. 1.** Lam. Dict. 2. 40; Ill. **t. 144, f. 1.** Ait. Hort. Kew. 1. 284. Schkuhr, Handb. **t. 50.** Willd. Spec. 1. 1185. Michx. Fl. 1. 160. Persoon, 1. 253. Sims, Bot. Mag. **t. 941.** Haw. Syn. Pl. Succ. 11. Pursh, 175. Bigel. Fl. Bost. 104. Turpin, Dict. Sci. Nat. 9. 380, **t. 195.** Röm. & Schult. Syst. 5. 433. "Tratt. Thes. Bot. **t. 17.**" Lodd. Bot. Cab. **t. 643.** Barton, Fl. N. Am. 2. 43, **t. 51.** Elliott, 1. 306. Torrey, Fl. U. S. 259; Fl. N. Y. 1. 110; Nicol. Rep. 146. Maund, Bot. Gard. 3, **t. 138.** Spreng. Syst. 1. 791. DC. Prodr. 3. 361, in part. Hook. Fl. Bor.-Am. 1. 224, in part. Sweet, Brit. Fl. Gard. 2 ser. **t. 163.** Don, Mill. 3. 81. Dietr. 1. 821. Torr. & Gray, Fl. 1. 198. Eat. & Wr. 198. Walp. Rep. 2. 237. Nees, Pl. Wied. 9. Gray, Genera, 1. 224, **t. 97**; Struct. Bot. 397, **f. 730–736**; Proc. Acad. Philad. 1863, 59; Manual, 98. Seem. Bot. Herald, 27. Parry, Pl. Minn. 610. Engelm. Pl. Upp. Miss. 186. Chapman, 44. Rothr. Alask. 446. Traill, Canad. Fl. 84, **t. 10.**

C. grandiflora. Sweet, Brit. Fl. Gard. 2 ser. **t. 216.** Don, Mill. 3. 81. Spach, Hist. Veg. 5. 226.

C. Simsii. Sweet, l. c. under t. 216.

C. acutiflora. Sweet, Hort. Brit. 2 ed. Don, Mill. 3. 81. Spach, Hist. Veg. 5. 225, **t. 37, f. 3.**

C. acutiflora; Virginica.
acutifolia; arctica.
alsinoides; Caroliniana, Sibirica.

C. aquatica; Chamissonis.
arctica; megarrhiza, sarmentosa.
asarifolia; Sibirica.

C. Chamissoi; sarmentosa.
Cubensis; perfoliata.
filicaulis; parvifolia.
flagellaris; Chamissonis.
grandiflora; Virginica.
gypsophiloides; perfoliata.
Joanneana; arctica.
lanceolata; arctica, Caroliniana, sarmentosa.
parviflora; perfoliata.
C. perfoliata; exigua.
Simsii; Virginica.
spathulæfolia; Caroliniana.
spathulata; Caroliniana, exigua, linearis, perfoliata.
stolonifera; Chamissonis.
tenuifolia; exigua.
Unalaschkensis; Sibirica.
Vestiana; sarmentosa.
Virginica; Caroliniana.

LEWISIA brachycalyx. Engelm.; Gray, Proc. Am. Acad. 7. 400. Watson King's Rep. 5. 45. Parry, Amer. Naturalist, 9. 201. Brew. & Wats. Bot. Calif 1. 79.

L. rediviva. Pursh, 368. Poir. Suppl. 5. 719. Nutt. Genera, 2. 13; Jour. Acad Philad. 7. 28, **t. 2.** Spreng. Syst. 2 459. Hook. Bot. Misc. 1. 345, **t. 70**; Fl. Bor.-Am. 1. 223; Lond. Jour. Bot. 6. 229. Don, Mill. 3. 77. Fenzl, Ann. Mus. Wien 2. 301. Torr. & Gray, Fl. 1. 677; Pac. R. Rep. 2. 119. Hook. & Arn. Bot Beechey, 344, **t. 86.** Eat. & Wr. 298. Dietr. 3. 23. Walp. Rep. 5. 790. Geyer Lond. Jour. Bot. 5. 306. Durand, Fl. Utah. 160. Torrey, Pac. R. Rep. 4. 71 Bot. Wilkes, 250. Gray, Ives's Rep. 8; Proc. Am. Acad. 7. 400. Hook. f. Bot Mag. **t. 5395.** Boland. Cat. 7. Watson, King's Rep. 5. 44; Pl. Wheel. 6. Porter, Hayd. Rep. 1871, 479. Coulter, same, 1872, 762. Dombrain, Flor. Mag. **t. 82**

L. alba. Kellogg, Trans. Calif. Acad. 2. 115, **f. 36.**

MONTIA fontana. Linn. Spec. 87. See syn. in DC. Prodr. 3. 362; Fenzl Ledeb. Fl. Ross. 2. 152. — Bong. Sitch. 136. Cham. in Linn. 6. 565, **t. 7, f. 1.** Don Mill. 3. 82. Torr. & Gray, Fl. 1. 202 & 677. Eat. & Wr. 323. Seem. Bot. Herald 28. Torrey, Pac. R. Rep. 4. 71. Hook. f. Arct. Pl. 291 & 328. Rothr. Alask. 446 Boland. Cat. 6.

M. rivularis, Gmel. Lange, Pl. Grönl. 131. Aschers. in Regensb. Flora, 43. 370
M. lamprosperma. Cham. in Linn. 6. 565, **t. 7, f. 2.**

PORTULACA lanceolata. Engelm. in Gray, Pl. Lindh. 154. Gray, Pl. Wright 2. 19. Walp. Ann. 2. 661. Schlecht. Bot. Zeit. 11. 741. Torrey, Mex. Bound. 38

P. OLERACEA, Linn. Walter, 144. Pursh, 365. Bigel. Fl. Bost. 199. Nutt. Genera, 2. 6. Elliott, 1. 534. James, Cat. 182; Long's Exped. 2. 179. Torrey, Ann Lyc. N. Y. 2. 102; Compend. 216; Fl. N. Y. 1. 109; Emory's Rep. 137 & 406; Sitgr Rep. 156; Bot. Wilkes, 248. Hook. Fl. Bor.-Am. 1. 222. Darling. Fl. Cestr. 314 Torr. & Gray, Fl. 1. 196. Eat. & Wr. 371. Gray, Genera, 1. 228, **t. 99**; Pl. Fendl 14; Manual, 98. Walp. Ann. 2. 261. Engelm. in Gray, Pl. Lindh. 155; Pl. Upp Miss. 186. Seem. Bot. Herald, 270. Parry, Pl. Minn. 609. Chapman, 44. Hayden, Proc. Am. Phil. Soc. 10. 315. Watson, King's Rep. 5. 42. Porter, Fl. Col. 1: Rothr. Pl. Wheel. 35.

P. sativa. James, Long's Exped. 1. 317.
? *P. consanguinea.* Schlecht. in Linn. 24. 693; Bot. Zeit. 11. 741.

P. pilosa. Linn. Spec. 445. See syn. in Lindl. Bot. Reg. **t. 792**; DC. Prodr 3. 354; Rohrb. in Mart. Fl. Bras. fasc. 56. 308. — Torrey, Ann. Lyc. N. Y. 2. 202 Pac. R. Rep. 4. 70; Mex. Bound. 38. Torr. & Gray, Fl. 1. 196. Eat. & Wr. 371 Engelm. in Gray, Pl. Lindh. 155. Gray, Pl. Fendl. 14; Pl. Wright. 1. 13 & 2. 2 Walp. Ann. 2. 661. Seem. Bot. Herald, 270. Griseb. Fl. Brit. W. Ind. 57. Chapman, 44. A. H. Smith, Proc. Acad. Philad. 1867, 18.

P. retusa. Engelm. in Gray, Pl. Lindh. 154. Gray, Pl. Wright. 1. 18 & 2. 19; Ives's Rep. 7. Walp. Ann. 2. 660. Schlecht. Bot. Zeit. 11. 739. Torrey, Pac. R. Rep. 4. 70.

SPRAGUEA paniculata. Kellogg, Proc. Calif. Acad. 2. 187, **f. 56.** Watson, King's Rep. 5. 44.

S. umbellata. Torrey, Pl. Frem. 4, **t. 1** (Regensb. Flora, 36. 704); Mex. Bound. 37. Durand, Pl. Pratten. 84. Torr. & Gray, Pac. R. Rep. 2. 119. Newberry, same, 6. 68. Cooper, same, 12. 51. Walp. Ann. 5. 8. **Hook. Bot. Mag. t. 5143.** Lemaire, Ill. Hort. 7, Misc. 6. Boland. Cat. 7. Anderson, Cat. 118. Watson, King's Rep. 5. 44. Porter, Hayd. Rep. 1871, 479. Coulter, same, 1872, 762. Gray, Proc. Am. Acad. 8. 378.

TALINOPSIS frutescens. Gray, Pl. Wright. 1. 14, **t. 3.** Walp. Ann. 5. 7. Torrey, Mex. Bound. 37.

TALINUM aurantiacum. Engelm. in Gray, Pl. Lindh. 153. Gray, Pl. Wright. 1. 14 & 2. 20. Walp. Ann. 2. 661 & 5. 8. Torrey, Sitgr. Rep. 175; Pac. R. Rep. 7. 8; Mex. Bound. 37.

Talinum, n. sp. Engelm. in Wisliz. Rep. 12.

T. brevifolium. Torrey, Sitgr. Rep. 156 (Regensb. Flora, 38. 361; Bonplandia, 8. 95).

T. calycinum. Engelm. in Wisliz. Rep. 4. Gray, Pl. Lindh. 154; Pl. Fendl. 14. Walp. Ann. 2. 661.

T. parviflorum. Nutt.; Torr. & Gray, Fl. 1. 197. Eat. & Wr. 448. Dietr. 3. 22. Torrey, Frem. Rep. 88; Mex. Bound. 37. Gray, Pl. Lindh. 154; Pl. Fendl. 14; Pl. Wright. 2. 20; Proc. Acad. Philad. 1863, 59. Parry, Pl. Minn. 609. Engelm. Pl. Upp. Miss. 186.

Talinum, n. sp. Nutt.; Torrey, Ann. Lyc. N. Y. 2. 202.

T. reflexum. Cav. Icon. 1, **t. 1.** See syn. in DC. Prodr. 3. 357. — Sims, Bot. Mag. **t. 1543.** Gray, Pl. Wright. 2. 20. Torrey, Mex. Bound. 37.

T. patens, var. Willd. Spec. 2. 863. Rohrb. in Mart. Fl. Bras. fasc. 56. 296.

T. spathulatum. Engelm. in Gray, Pl. Wright. 1. 14. Walp. Ann. 5. 7.

T. sarmentosum. Engelm. in Gray, Pl. Lindh. 153. Gray, Pl. Wright. 1. 14. Walp. Ann. 2. 661.

T. spinescens. Torrey, Bot. Wilkes, 250.

T. teretifolium. Pursh, 365. Nutt. Genera, 2. 6. Elliott, 1. 535. Lodd. Cab. **t. 819.** Darling. Fl. Cestr. 56, **t. 3.** Spreng. Syst. 2. 453. Torrey, Compend. 216. DC. Prodr. 3. 356. Don, Mill. 3. 76. Spach, Hist. Veg. 5. 228. Torr. & Gray, Fl. 1. 196. Eat. & Wr. 448. Dietr. 3. 23. Gray, Pl. Lindh. 154; Genera, 1. 226, **t. 98**; Proc. Acad. Philad. 1863, 59; Manual, 98. Torrey, Marcy's Rep. 281. Chapman, 44. Porter, Fl. Col. 14.

Phemeranthus teretifolius. Raf. Specch. 1. 86.

T. ciliatum. Walp. Rep. 2. 934.

TAMARISCINEÆ.

FOUQUIERA formosa. HBK. Nov. Gen. 6. 81, **t. 527.** Spreng. Syst. 2. 568. DC. Prodr. 3. 349. Engelm. Wisliz. Rep. 14. Gray, Pl. Wright. 1. 76 & 2. 68. Walp. Ann. 3. 828. Torrey, Sitgr. Rep. 165.

Philatæria horrida. Liebm. in Dansk. Vidensk. Selsk. Skrift. 5. 2. 283, & t.

F. spinosa. HBK. Nov. Gen. 3. 452. Engelm. Wisliz. Rep. 14. Gray, Pl. Wright. 1. 76; Pl. Thurb. 303; Proc. Am. Acad. 5. 158. Torrey, Sitgr. Rep. 165. Walp. Ann. 3. 828. Benth. & Hook. Genera, 162.

Bronnia spinosa. HBK. Nov. Gen. 6. 83, t. **528.** DC. Prodr. 3. 350. Benth. Bot. Sulph. 16.

Cantua spinosa. Willd.; Röm. & Schult. Syst. 4. 369.

? *Idria columnaria.* Kellogg, Proc. Calif. Acad. 2. 34.

F. splendens. Engelm. Wisliz. Rep. 14 & 20. Gray, Pl. Wright. 1. 76 & 2. 63; Pl. Thurb. 301; Ives's Rep. 23. Walp. Ann. 3. 828. Torrey, Sitgr. Rep. 165; Pac. R. Rep. 5. 363 & 7. 11; Mex. Bound. 148. Watson, Pl. Wheel. 6.

F. spinosa. Torrey, Emory's Rep. 147, t. **8.**

ELATINEÆ.

ELATINE Americana. Arnott in Edinb. Journ. Sci. 1. 430. Torr. & Gray, Fl. 1. 203. Fenzl, Denkschr. Regensb. 3. 182. Torrey, Fl. N. Y. 1. 91; Mex. Bound. 36. Gray, Genera, 1. 220, t. **95**; Pl. Wright. 1. 12 & 2. 17; Manual, 87; Proc. Am. Acad. 8. 377. Watson, King's Rep. 5. 45. Porter, Fl. Col. 15. Rothr. Pl. Wheel. 35. Brew. & Wats. Bot. Calif. 1. 80.

Peplis Americana. Pursh, 238. Poir. Suppl. 5. 773. Nutt. Genera, 1. 228. Bigel. Fl. Bost. 3 ed. 12.

Crypta minima. Nutt. in Journ. Acad. Philad. 1. 117, t. **6, f. 1** (Litt.-Ber. zu Linnæa, 1828, 163); Genera, 2. Appx. Barton, Comp. Fl. Phil. 1. 17. Roem. & Schult. Syst. Mant. 1. 232. Torrey, Fl. U. S. 1. 32. Spreng. Syst. 1. 124. Dietr. 1. 124. Eat. & Wr. 214.

? *Leptrina autumnalis.* Raf. Journ. Phys. 1819, 96. DC. Prodr. 3. 362. Torr. & Gray, Fl. 1. 196. Fisch. & Mey. in Linn. 10. 73. Don, Mill. 3. 83. Fenzl, Ann. Mus. Wien, 2. 299.

Elatine minima. Fisch. & Mey. in Linn. 10. 73. Seubert, Mon. Elat. 41, t. **2, f. 9** (Walp. Rep. 1. 283). Walp. Rep. 5. 83. Muell. Pl. Indig. Vict. 1. 195.

E. Clintoniana. Peck, Rep. N. Y. State Univ. 22. 52. Wood, Bot. & Fl. 51.

BERGIA Texana. Seub.; Walp. Rep. 1. 285. Benth. & Hook. Genera, 1. 163. Watson, King's Rep. 5. 45. Gray, Hall's Pl. Tex. 5.

Merimea (?) *Texana.* Hook. Icon. t. **278.**

Elatine Texana. Torr. & Gray, Fl. 1. 678. Fenzl, Regensb. Denkschr. 3. 183. Gray, Pl. Lindh. 187; Genera, 1. 218, t. **96**; Pl. Wright. 1. 12.

Bergella Texana. Schnizl. Icon. t. **219, f. 1, 2 & 26.**

HYPERICACEÆ.

ASCYRUM amplexicaule. Michx. Fl. 2. 77. Persoon, 2. 81. Poir. Suppl. 1. 481. Pursh, 374. Chois. in DC. Prodr. 1. 555. Elliott, 2. 23. Spreng. Syst. 3. 351. Don, Mill. 1. 613. Hook. Jour. Bot. 1. 199. Spach, Ann. Sci. Nat. 2. 5. 368; Hist. Veg. 5. 457. Torr. & Gray, Fl. 1. 157. Eat. & Wr. 140. Dietr. 4. 1239. Chapman, 39. Wood, Cl.-Book, 247; Bot. & Fl. 49.

Hypericum tetrapetalum. Lam. Dict. 4. 153.

A. stans. Willd. Spec. 3. 1473.

A. stans, var. *β.* Chois. Prodr. Hyper. 61.

A. Crux-Andreæ. Linn. Spec. 2 ed. 1107, not 1 ed. fide Torr. & Gray, Fl. 1. 672. Hill, Veg. Syst. 12, t. 34, f. 1, & 15, t. 9, f. 1. Lam. Dict. 1. 285. Walter, 191. Ait. Hort. Kew. 3. 109. Willd. Spec. 3. 1472. Persoon, 2. 81. Pursh, 373. Chois. Prodr. Hyper. 61; DC. Prodr. 1. 555. Elliott, 2. 22. Torrey, Compend. 219. Spreng. Syst. 3. 351. Don, Mill. 1. 662. Hook. Jour. Bot. 1. 199. Spach, l. c. 368. Torr. & Gray, Fl. 1. 156. Eat. & Wr. 139. Dietr. 4. 1239. Chapman, 38. Lesqx. Fl. Ark. 350. Gray, Manual, 83; Hall's Pl. Tex. 5.

A. helianthemifolium, linifolium, oblongifolium & spathulatum. Spach, Ann. Sci. Nat. 2. 5. 368; Hist. Veg. 5. 460.

A. Plumieri. Bertol. Bot. Misc. 13. 19, t. 3, f. 3 (Bot. Zeit. 14. 118), fide Gray, Am. Jour. Sci. 2. 20. 279.

Var. **angustifolium.** Nutt. Genera, 2. 16. Chois. in DC. Prodr. 1. 555. Torr. & Gray, Fl. 1. 156. Eat. & Wr. 139.

A. multicaule. Michx.; Willd. Spec. 3. 1472. Michx. Fl. 2. 77. Persoon, 2. 81. Poir. Suppl. 1. 480. Spreng. Syst. 3. 352. Don, Mill. 1. 613.

A. hypericoides. Linn. Spec. 788, in part, not of 2d ed. Ait. f. Hort. Kew. 4. 430, in part.

A. Michauxii. Spach, ll. cc.

A. hypericoides. Linn. Spec. 788, in part, & 2 ed. 1108, mostly. Chois. in DC. Prodr. 1. 555. Griseb. Fl. Brit. W. Ind. 112.

A. microsepalum. Torr. & Gray, Fl. 1. 157. Eat. & Wr. 140. Dietr. 4. 1239. Chapman, 39. Wood, Cl.-Book, 247; Bot. & Fl. 48.

Isophyllum Drummondii. Spach, Ann. Sci. Nat. 2. 5. 367; Hist. Veg. 5. 433.

A. pumilum. Michx. Fl. 2, 77. Poir. Suppl. 1. 481. Pursh, 373. Chois. in DC. Prodr. 1. 555. Elliott, 2. 21. Spreng. Syst. 3. 352. Don, Mill. 1. 612. Hook. Jour. Bot. 1. 199. Spach, ll. cc. 369 & 463. Torr. & Gray, Fl. 1. 156 & 672. Eat. & Wr. 140. Dietr. 4. 1239. Chapman, 39. Wood, Cl.-Book, 247; Bot. & Fl. 48.

A. pauciflorum. Nutt. Genera, 2. 15. Chois. l. c. 1. 555. Don, Mill. 1. 612.

A. stans. Michx. Fl. 2. 77, not Willd. Vent. Hort. Malm. t. 90. Poir. Suppl. 1. 481. Ait. f. Hort. Kew. 4. 430. Chois. Prodr. Hyper. 61; DC. Prodr. 1. 555. Torrey, Compend. 219; Fl. N. Y. 1. 84. Spreng. Syst. 3. 351. Don, Mill. 1. 613. Spach, ll. cc. 368 & 457. Torr. & Gray, Fl. 1. 157. Eat. & Wr. 140. Dietr. 4. 1239. Gray, Genera, 1. 212, t. 91; Manual, 83. Chapman, 39.

A. hypericoides. Linn. Spec. 788, syn. *Pluk.* Marsh. Arbust. 14. Walter, 191. Willd. Spec. 3. 1473, in part. Pursh, 373. Elliott, 2. 22. Don, Mill. 1. 613.

A. Crux-Andreæ, var. *stans.* Persoon, 2. 81.

A. grandiflorum. Raf. Fl. Lud. 87.

? *A. simplex.* Zeyh.; Turcz. in Bull. Soc. Mosc. 31[1]. 389.

ELODES petiolata. Pursh, 379. Nutt. Genera, 2. 17. Barton, Comp. Fl. Phil. 2. 17. Elliott, 2. 34. Don, Mill. 1. 612. Torr. & Gray, Fl. 1. 168. Eat. & Wr. 232. Dietr. 4. 1237. Chapman, 42. Gray, Manual, 86. The genus, as including *Elodes*, of Adanson, and *Elodea*, *Elodes* & *Triadenia* of Spach, is referred to *Hypericum* by Treviranus and Benth. & Hooker.

Hypericum petiolatum. Walter, 191. Poir. Suppl. 5. 733. Eat. & Wr. 279.

Hypericum axillare. Michx. Fl. 2. 81.

Hypericum campanulatum, var. β ? Poir. Suppl. 3. 696.

Hypericum paludosum. Chois. Prodr. Mon. Hyper. 43; DC. Prodr. 1. 546. Hook. Jour. Bot. 1. 198.

Martia petiolata. Spreng. Syst. 3. 833.

Elodea axillaris & floribunda. Spach, Ann. Sci. Nat. 2. 5. 169; Hist. Veg. 5. 368.

E. tubulosa. Pursh, 379. Nutt. Genera, 2. 17. Elliott, 2. 34. Don, Mill. 1. 612. Torr. & Gray, Fl. 1. 168. Dietr. 4. 1238. Not identified.

Hypericum tubulosum. Walter, 191. Poir. Suppl. 5. 733. Chois. in DC. Prodr. 1. 546. Eat. & Wr. 280.

Elodea pauciflora. Spach, ll. cc. 169 & 367.

E. Virginica. Nutt. Genera, 2. 17. Elliott, 2. 33. Spach, ll. cc. 166 & 364. Torr. & Gray, Fl. 1. 167. Eat. & Wr. 282. Torrey, Fl. N. Y. 1. 90. Dietr. 4. 1237. Gray, Genera, 1. 216, t. **94**; Pac. R. Rep. 12. 41; Manual, 86. Parry, Pl. Minn. 609. Chapman, 42.

Hypericum Virginicum. Linn. Spec. 2 ed. 1104. Hill, Veg. Syst. 15, t. **4**, f. **4**. Lam. Dict. 4. 162. Willd. Spec. 3. 1455. Michx. Fl. 2. 81. Persoon, 2. 89. Andr. Bot. Rep. 8, t. **552**. Ait. f. Hort. Kew. 4. 425. Bigel. Fl. Bost. 298. Chois. in DC. Prodr. 1. 546. Torrey, Compend. 221. Hook. Jour. Bot. 1. 198. Darling. Fl. Cestr. 322. Trevir. Hyper. 8.

Hypericum campanulatum. Walter, 191. Poir. Suppl. 3. 696 & 5. 733.

H. emarginatum. Lam. Dict. 4. 154.

Triadenum purpurascens. Raf. Med. Rep. 5. 355; Desv. Journ. Bot. 2. 171.

Elodes campanulata. Pursh, 379. Don, Mill. 1. 612.

Martia campanulata. Spreng. Syst. 3. 333.

Elodea Virginica, Drummondii & Fraseri. Spach, ll. cc. 166 & 364.

HYPERICUM adpressum. Barton, Comp. Fl. Phil. 2. 15. Torr. & Gray, Fl. 1. 159. Eat. & Wr. 279. Dietr. 4. 1234. Gray, Manual, 84.

• *H. Bonapartææ.* **Barton, Fl. N. Am. 3. 95, t. 106.**

Var. fastigiatum. Torr. & Gray, Fl. 1. 673.

H. fastigiatum. Elliott, 2. 31. Torr. & Gray, Fl. 1. 166. Eat. & Wr. 280. Chapman, 41.

H. anagalloides. Cham. & Schlecht. in Linn. 3. 127. Don, Mill. 1. 607. Torr. & Gray, Fl. 1. 167 & 674. Hook. & Arn. Bot. Beechey, 136. Dietr. 4. 1235. Torrey, Pac. R. Rep. 4. 68; Bot. Wilkes, 240. Boland. Cat. 6. Gray, Proc. Am. Acad. 8. 377.

? *H. mutilum.* Watson, King's Rep. 5. 46.

H. angulosum. Michx.; Willd. Spec. 3. 1454. Michx. Fl. 2. 78. Persoon, 2. 88. Poir. Suppl. 3. 696. Pursh, 378. Torrey, Compend. 220. Chois. in DC. Prodr. 1. 546. Elliott, 2. 25. Spreng. Syst. 3. 845. Don, Mill. 1. 603. Hook. Jour. Bot. 1. 168. Torr. & Gray, Fl. 1. 164 & 673. Eat. & Wr. 279. Dietr. 4. 1235. Chapman, 41. Gray, Manual, 85.

H. denticulatum. Walter, 190, not Kunth.

? *H. lævigatum.* Ait. Hort. Kew. 3. 106. Poir. Suppl. 5. 374. Torr. & Gray, Fl. 1. 161. Dietr. 4. 1235.

H. virgatum. Lam. Dict. 4. 158. Persoon, 2. 88. Chois. in DC. Prodr. 1. 547. Spreng. Syst. 3. 846. Don, Mill. 1. 604. Torr. & Gray, Fl. 1. 166. Eat. & Wr. 281.

H. hedyotifolium. Poir. Suppl. 7. 700. Chois. in DC. Prodr. 1. 547. Don, Mill. 1. 604. Torr. & Gray, Fl. 1. 166. Eat. & Wr. 281.

H. acutifolium. Elliott, 2. 26. Torr. & Gray, Fl. 1. 167. Eat. & Wr. 280.

Brathys Erythreæ, lanceolata & linoides. Spach, Ann. Sci. Nat. 2. 5. 367; Hist. Veg. 5. 452.

H. aureum. Barton, Travels, 383. Torr. & Gray, Fl. 1. 161. Dietr. 4. 1234. Chapman, 40. Wood, Cl.-Book, 249; Bot. & Fl. 49.

H. frondosum. Michx. Fl. 2. 81. Poir. Suppl. 3. 699. Pursh, 375. Muhl. Cat.

71. Chois. in DC. Prodr. 1. 544. Spreng. Syst. 3. 846. Don, Mill. 1. 601. Eat. & Wr. 279.

H. ascyroides, var. β. Poir. Suppl. 3. 694.

H. amœnum. Pursh, 375. Poir. Suppl. 5. 733. Nutt. Genera, 2. 10. Chois. in DC. Prodr. 1. 544. Elliott, 2. 31. Spreng. Syst. 3. 846. Don, Mill. 1. 601.

H. Rugelianum. Kunze, Ind. Sem. Lips. (Linn. 24. 176).

H. Buckleyi. M. A. Curtis, Am. Jour. Sci. 44. 80. Chapman, 39. Wood, Cl.-Book, 248; Bot. & Fl. 49.

H. Canadense. Linn. Spec. 785. Hill, Veg. Syst. 15, **t. 4, f. 5.** Ait. Hort. Kew. 3. 105. Lam. Dict. 4. 162. Willd. Spec. 3. 1455. Michx. Fl. 2. 79. Persoon, 2. 89. Pursh, 378. Bigel. Fl. Bost. 280. Chois. in DC. Prodr. 1. 550. Elliott, 2. 24. Torrey, Compend. 220; Fl. N. Y. 1. 89. Spreng. Syst. 3. 847. Hook. Fl. Bor.-Am. 1. 110. Don, Mill. 1. 608. Darling. Fl. Cestr. 324. Torr. & Gray, Fl. 1. 165. Eat. & Wr. 279. Dietr. 4. 1235. Chapman, 42. Lesqx. Fl. Ark. 350. Trevir. Hyper. 10. Gray, Manual, 86.

H. thesiifolium, pauciflorum & Moranense. HBK. Nov. Gen. & Spec. 5. 192 & 193, fide Chois. in DC. Prodr. 1. 550.

Brathys Canadensis. Spach, Ann. Sci. Nat. 2. 5. 367.

Var. major. Gray, Manual, 86.

H. cistifolium. Lam. Dict. 4. 158. Persoon, 2. 88. Chois. in DC. Prodr. 1. 547. Spreng. Syst. 3. 846. Torr. & Gray, Fl. 1. 166 & 674. Eat. & Wr. 279. Dietr. 4. 1235. Chapman, 41. Wood, Cl.-Book, 249; Bot. & Fl. 50. Trevir. Hyper. 9.

H. rosmarinifolium. Lam. Dict. 4. 159 ?, not DC. Willd. Spec. 3. 1450. Persoon, 2. 88. Elliott, 2. 29. Spreng. Syst. 3. 844. Beck, Am. Jour. Sci. 14. 115. Don, Mill. 1. 604. Hook. Jour. Bot. 1. 199. Torr. & Gray, Fl. 1. 159. Eat. & Wr. 280. Dietr. 4. 1234. Wood, Cl.-Book, 248; Bot. & Fl. 49.

H. nudiflorum. Hook. Jour. Bot. 1. 199, excl. var. Reich. Hort. Bot. 1. 60, **t. 87?**

H. opacum. Torr. & Gray, Fl. 1. 163. Eat. & Wr. 280. Dietr. 4. 1235.

Brathydium hyssopifolium. Spach, l. c. 365.

H. punctulosum. Bertol. Bot. Misc. 13. 18, **t. 3, f. 2** (Bot. Zeit. 14. 118), fide Gray, Am. Jour. Sci. 2. 20. 279.

H. concinnum. Benth. Pl. Hartw. 300. Durand, Pl. Pratten. 83. Torrey, Bot. Wilkes, 249.

H. bracteatum. Kellogg, Proc. Calif. Acad. 1. 65.

H. corymbosum. Muhl.; Willd. Spec. 3. 1457; Enum. 810. Persoon, 2. 89. Poir. Suppl. 3. 697. Pursh, 377. Bigel. Fl. Bost. 280. Torr. & Gray, Fl. 1. 160 & 673. Eat. & Wr. 279. Torrey, Fl. N. Y. 1. 87. Dietr. 4. 1234. Chapman, 40. Gray, Manual, 85.

H. Virginicum. Walter, 189.

H. maculatum. Michx. Fl. 2. 80, not Walt. Ait. f. Hort. Kew. 4. 426.

H. micranthum. Chois. Prodr. Hyper. 44, **t. 5** (Spreng. Neue Entdeck. 3. 302); DC. Prodr. 1. 546. Hook. Fl. Bor.-Am. 1. 109; Jour. Bot. 1. 199. Don, Mill. 1. 603. Eat. & Wr. 279.

H. punctatum. Spreng. Syst. 3. 843, not Lam. Torrey, Compend. 220. Reich. Hort. Bot. 1. 61, **t. 88.** Beck, Bot. 61. Darling. Fl. Cestr. 322. Spach, Ann. Sci. Nat. 2. 5. 357.

H. densiflorum. Pursh, 376. Poir. Suppl. 5. 734. Chois. in DC. Prodr. 1. 547. Don, Mill. 1. 604.

H. galioides. Pursh, 376, not Lam.
H. rostratum. Raf. Fl. Lud. 88. Eat. & Wr. 281.
H. prolificum, var. (?) γ. Torr. & Gray, Fl. 1. 159.
H. prolificum, var. *densiflorum.* Gray, Manual, 84.

H. dolabriforme. Vent. Hort. Cels, **t. 45.** Persoon, 2. 89. Poir. Suppl. 3. 698. Pursh, 378. Chois. in DC. Prodr. 1. 547. Spreng. Syst. 3. 847. Don, Mill. 1. 604. Torr. & Gray, 1. 162. Eat. & Wr. 280. Dietr. 4. 1234. Gray, Manual, 84.

H. procumbens. Desf.; Willd. Spec. 3. 1450. Michx. Fl. 2. 81. Persoon, 2. 88. Poir. Suppl. 3. 695. Pursh, 378. Chois. in DC. Prodr. 1. 547. Spreng. Syst. 3. 847. Don, Mill. 1. 604.

Brathydium grandiflorum. Spach, l. c. 365; Hist. Veg. 5. 443.

H. Drummondii. Torr. & Gray, Fl. 1. 165. Eat. & Wr. 280. Dietr. 4. 1235. Torrey, Sitgr. Rep. 175. Chapman, 42. Gray, Manual, 86.

Sarothra Drummondii. Grev. & Hook. in Bot. Misc. 3. 236, **t. 107.** Hook. Jour. Bot. 1. 199.

Brathys Drummondii. Spach, Ann. Sci. Nat. 2. 5. 367.

H. elatum. Ait. Hort. Kew. 3. 104, not Lam. Willd. Spec. 3. 1448; Enum. 809. Don, Mill. 1. 601. Loud. Arbor. 1. 398. Torr. & Gray, Fl. 1. 166 & 673. Eat. & Wr. 280. Dietr. 4. 1235. Trevir. Hyper. 7. A doubtful species.

H. ellipticum. Hook. Fl. Bor.-Am. 1. 110. Torr. & Gray, Fl. 1. 164. Eat. & Wr. 279. Torrey, Nicol. Rep. 146; Fl. N. Y. 1. 88; Emory's Rep. 406. Dietr. 4. 1325. Gray, Manual, 85.

H. sphærocarpon. Barton, Fl. Philad. 2. 14, not Michx. Nutt. Genera, 2. 16.

H. fasciculatum. Lam. Dict. 4. 160. Pursh, 376. Chois. in DC. Prodr. 1. 554. Elliott, 2. 28. Spreng. Syst. 3. 344. Don, Mill. 1. 611. Torr. & Gray, Fl. 1. 160. Eat. & Wr. 280. Loud. Arbor. 1. 402. Dietr. 4. 1234. Chapman, 40. Wood, Cl.-Book, 248; Bot. & Fl. 49.

? *H. Coris.* Walter, 190.

H. nitidum. Lam. Dict. 4. 160. Persoon, 2. 88. Chois. in DC. Prodr. 1. 554.

? *H. fulgidum.* Raf. Fl. Lud. 88. Chois. in DC. Prodr. 1. 554.

Myriandra nitida. Spach, Ann. Sci. Nat. 2. 5. 365; Hist. Veg. 5. 436.

Var. **aspalathoides.** Torr. & Gray, Fl. 1. 672.

H. aspalathoides. Willd. Spec. 3. 1451. Persoon, 2. 88. Pursh, 376. Elliott, 2. 27. Eat. & Wr. 280.

H. tenuifolium. Pursh, 377. Don, Mill. 1. 611.

Myriandra brachyphylla. Spach, ll. cc.

H. Scouleri. Hook. Fl. Bor.-Am. 1. 111; Lond. Journ. Bot. 6. 74. Torr. & Gray, Fl. 1. 160. Eat. & Wr. 280. Dietr. 4. 1234. Benth. Pl. Hartw. 301. Gray, Pl. Fendl. 11; Proc. Am. Acad. 8. 377. Durand, Pl. Pratten. 83. Newberry, Pac. R. Rep. 6. 67. Cooper, same, 12. 56. Torrey, Mex. Bound. 36. Gray, Proc. Acad. Philad. 1863, 58. Boland. Cat. 6. Anderson, Cat. 118. Watson, King's Rep. 5. 45; Pl. Wheel. 6. Porter, Fl. Col. 15. Rothr. Pl. Wheel. 35. Brew. & Wats. Bot. Calif. 1. 81.

H. formosum. Gray, Pl. Wright. 2. 17; not HBK. Torrey, Mex. Bound. 36; Bot. Wilkes, 230.

H. galioides. Lam. Dict. 4. 161. Willd. Spec. 3. 1451. Persoon, 2. 88. Chois. in DC. Prodr. 1. 550. Torrey, Compend. 220. Spreng. Syst. 3. 344. Don, Mill. 1. 609. Hook. Jour. Bot. 1. 199. Torr. & Gray, Fl. 1. 160. Dietr. 4. 1234. Chapman, 40. Wood, Cl.-Book, 248; Bot. & Fl. 49.

H. axillare. Lam. Dict. 4. 160. Persoon, 2. 88. Chois. in DC. Prodr. 1. 550. Spreng. Syst. 3. 343. Don, Mill. 1. 609.

H. fasciculatum. Michx.; Willd. Spec. 3. 1452, not Lam. Michx. Fl. 2. 80. Persoon, 2. 88. Hook. Jour. Bot. 1. 199.

H. Michauxii. Poir. Suppl. 3. 696.

Myriandra galioides & *Michauxii.* Spach, ll. cc.

Var. **ambiguum.** Chapman, 40.

? *H. ambiguum.* Elliott, 2. 30. Torr. & Gray, Fl. 1. 162 & 678. Eat. & Wr. 280. Dietr. 4. 1234. Wood, Cl.-Book, 249; Bot. & Fl. 49.

H. graveolens. Buckley, Am. Jour. Sci. 45. 174. Gray, Genera, 1. 214, t. **92**; Manual, 85. Chapman, 41.

H. Kalmianum. Linn. Spec. 783. Hill, Veg. Syst. 15, t. **1, f. 2.** DuRoi, Obs. Bot. 29. Marsh. Arbust. 62. Lam. Dict. 4. 148. Willd. Spec. 3. 1438. Persoon, 2. 86. Pursh, 374. Chois. in DC. Prodr. 1. 545. Spreng. Syst. 3. 341. Torrey, Compend. 219; Fl. N. Y. 1. 86, t. **13.** Maund, Bot. Gard. 5, t. **194.** Hook. Fl. Bor.-Am. 1. 109. Don, Mill. 1. 603. Torr. & Gray, Fl. 1. 158. Eat. & Wr. 279. Dietr. 4. 1234. Loud. Arbor. 1. 401. Gray, Manual, 84.

H. maculatum. Walter, 189. Persoon, 2. 90. Poir. Suppl. 3. 701. Elliott, 2. 27. Torr. & Gray, Fl. 1. 161 & 673. Dietr. 4 1234. Engelm. & Gray, Pl. Lindh. 33. Chapman, 40. Wood, Cl.-Book, 249; Bot. & Fl. 49. Gray, Hall's Pl. Tex. 5.

H. punctatum. Lam. Dict. 4. 164. Persoon, 2. 89. Chois. in DC. Prodr. 1. 547. Reich. Hort. Bot. 1. 61, t. **88.** Don, Mill. 1. 604. Hook. Jour. Bot. 1. 199. Trevir. Hyper. 8.

H. mutilum. Linn. Spec. 787. Hill, Veg. Syst. 15, t. **8, f. 1.** Lam. Dict. 4. 181. Willd. Spec. 3. 1471. Persoon, 2. 91. Ait. f. Hort. Kew. 4. 425. Torr. & Gray, Fl. 1. 164. Torrey, Fl. N. Y. 1. 88. Dietr. 4. 1235 (*rutilum*). Chapman, 41. Gray, Manual, 85; Hall's Pl. Tex. 3.

Ascyrum Crux-Andreæ. Linn. Spec. 787, not 2 ed., fide Torr. & Gray, Fl. 1. 672.

H. quinquenervium. Walter, 190. Michx. Fl. 2. 79. Poir. Suppl. 3. 697. Chois. in DC. Prodr. 1. 550. Torrey, Compend. 220. Spreng. Syst. 3. 346. Reich. Hort. Bot. 1. 64, t. **96.** Hook. Fl. Bor.-Am. 1. 110; Jour. Bot. 1. 199. Don, Mill. 1. 608. Darling. Fl. Cestr. 323. Trevir. Hyper. 10.

H. parviflorum. Willd. Spec. 3. 1456. Persoon, 2. 89. Pursh, 377. Elliott, 2 24. Bigel. Fl. Bost. 280. Eat. & Wr. 279.

H. stellarioides. HBK. Nov. Gen. & Sp. 5. 196.

Brathys quinquenervia. Spach, Ann. Sci. Nat. 2. 5. 367.

Sarothra Blentinensis. Sav. Giorn. Pisan. 1839.

Var. **gymnanthum.** Gray, Manual, 86.

H. gymnanthum. Engelm. & Gray, Pl. Lindh. 4. Walp. Ann. 2. 188. Gray, Hall's Pl. Tex. 3.

H. myrtifolium. Lam. Dict. 4. 180. Chois. in DC. Prodr. 1. 547. Spreng. Syst. 3. 346. Don, Mill. 1. 604. Torr. & Gray, Fl. 1. 162. Dietr. 4. 1234. Chapman, 40. Wood, Cl.-Book, 249; Bot. & Fl. 49. Trevir. Hyper. 9.

H. glaucum. Michx. Fl. 2. 78. Poir. Suppl. 3. 697. Pursh, 376. Chois. in DC. Prodr. 1. 547. Elliott, 2. 32. Spreng. Syst. 3. 343. Don, Mill. 1. 606. Eat. & Wr. 280.

H. rosmarinifolium. Chois. in DC. Prodr. 1. 547, not Lam.

H. sessiliflorum. Willd.; Spreng. Syst. 3. 346. Don, Mill. 1. 601. Torr. & Gray, Fl. 1. 166.

Myriandra glauca. Spach, l. c. 365; Hist. Veg. 5. 442.

H. nudiflorum. Michx.; Willd. Spec. 3. 1456. Michx. Fl. 2. 78. Persoon, 2. 89 Ait. f. Hort. Kew. 4. 425. Poir. Suppl. 3. 697. Pursh, 375. Chois. in DC. Prodr 1. 548. Elliott, 2. 32. Spreng. Syst. 3. 845. Don, Mill. 1. 606. Hook. Jour Bot. 1. 199. Torr. & Gray, Fl. 1. 162. Eat. & Wr. 280. Dietr. 4. 1234. Chapman, 41. Gray, Manual, 84.

Myriandra nudiflora & ledifolia. Spach, ll. cc. 365 & 440.

H. PERFORATUM, Linn. Pursh, 377. Bigel. Fl. Bost. 279. Torrey, Compend. 220; Fl. N. Y. 1. 86. Hook. Fl. Bor.-Am. 1. 110. Torr. & Gray, Fl. 1. 160. Eat. & Wr. 279. Chapman, 40. Hook. f. Arct. Pl. 288. Gray, Struct. Bot. 395, f. **720–723**; Manual, 85.

H. pseudoperforatum. Bertol. Bot. Misc. 3. 14, t. **5, f. 1.**

H. prolificum. Linn. Mant. 106. Ait. Hort. Kew. 3. 105. Moench, Meth. 128. Lam. Dict. 4. 159. Willd. Spec. 3. 1453; Enum. 809. Persoon, 2. 88. Pursh, 375. Chois. in DC. Prodr. 1. 547. Elliott, 2. 30. Torrey, Compend. 220. Spreng. Syst. 3. 843. Don, Mill. 1. 605. Hook. Jour. Bot. 1. 199. Torr. & Gray, Fl. 1. 159, excl. var. γ. Eat. & Wr. 279. Loud. Arbor. 1. 401, & 5. 2541, f. **2415.** Dietr. 4. 1234. Chapman, 39. Lesqx. Fl. Ark. 350. Gray, Manual, 84, excl. var.

H. foliosum. Jacq. Hort. Schœnb. 3. 27, t. **299.**

Myriandra prolifica & spathulata. Spach, ll. cc. 365 & 439.

H. pyramidatum. Ait. Hort. Kew. 3. 103. Willd. Spec. 3. 1444; Enum. 809. Vent. Hort. Malm. t. **118.** Persoon, 2. 87. Pursh, 374. Chois. in DC Prodr. 1. 545. Spreng. Syst. 3. 842. Don, Mill. 1. 602. Torr. & Gray, Fl. 1. 158. Eat. & Wr. 279. Torrey, Ff. N. Y. 1. 85, t. **12**; Nicol. Rep. 146. Dietr. 4. 1234. Gray, Genera, 1. 214, t. **93** (fruit); Manual, 84. Parry, Pl. Minn. 609. Pl. Bourgeau, 255.

H. amplexicaule. Lam. Dict. 4. 147.

H. ascyroides. Willd. Spec. 3. 1443. Persoon, 2. 87. Poir. Suppl. 3. 694. Pursh, 374. Bigel. Fl. Bost. 279. Chois. in DC. Prodr. 1. 545. Torrey, Compend. 219. Hook. Fl. Bor.-Am. 1. 109. Don, Mill. 1. 602.

H. macrocarpum. Michx. Fl. 2. 82. Persoon, 2. 86. Spreng. Syst. 3. 842.

Roscyna Americana. Spach, Ann. Sci. Nat. 2. 5. 364; Hist. Veg. 5. 431.

? *Brathydium Canadense.* Spach, ll. cc. 365 & 446.

H. setosum. Linn. Spec. 787. Hill, Veg. Syst. 15, t. **8, f. 2.** Ait. Hort. Kew 3. 108. Lam. Dict. 4. 181. Willd. Spec. 3. 1472. Persoon, 2. 91.

Ascyrum villosum. Linn. Spec. 788. Hill, Veg. Syst. 12, t. **34, f. 2, & 15, t. 9 f. 2.** Marsh. Arbust. 14. Lam. Dict. 1. 286. Willd. Spec. 3. 1474.

H. pilosum. Walter, 190. Nutt. Genera, 2. 16. Chois. in DC. Prodr. 1. 549 Spreng. Syst. 3. 846. Don, Mill. 1. 607. Torr. & Gray, Fl. 1. 163. Eat. & Wr 280. Dietr. 4. 1235. Chapman, 41. Wood, Cl.-Book, 250; Bot. & Fl. 50. Trevir Hyper. 9.

H. simplex. Michx. Fl. 2. 80. Poir. Suppl. 3. 698. Pursh, 379. Nutt. Genera, 2. 16. Chois. in DC. Prodr. 1. 549. Elliott, 2. 25. Spreng. Syst. 3. 842. Don, Mill. 1. 607. Hook. Jour. Bot. 1. 199.

H. Nuttallii. Don, Mill. 1. 607.

Brathys tomentosa. Spach, ll. cc. 367 & 453.

H. Sarothra. Michx. Fl. 2. 79. Pursh, 378. Poir. Suppl. 5. 39. Torrey, Compend. 221; Fl. N. Y. 1. 89. Spreng. Syst. 3. 850. Darling. Fl. Cestr. 324. Torr. & Gray, Fl. 1. 165. Eat. & Wr. 280. Dietr. 4. 1235. Gray, Genera, 1. 214, t. **93, f. 1–7**; Manual, 86 Chapman, 42.

Sarothra gentianoides. Linn. Spec. 272. Hill, Veg. Syst. 13, t. **23.** Ait. Hort.

Kew. 1. 380. Willd. Spec. 1. 1515. Lam. Ill. **t. 215, f. 1.** Persoon, 1. 331. Bigel. Fl. Bost. 121. Elliott, 1. 371. Grev. & Hook. Bot. Misc. 3. 226. Hook. Jour. Bot. 1. 199.

H. nudicaule. Walter, 190.

Sarothra hypericoides. Nutt. Genera, 1. 204. Barton, Fl. N. Am. 3. 59, **t. 92, f. 1.** Don, Mill. 1. 612.

Brathys gentianoides. Spach, Ill. cc. 367 & 455.

H. sphærocarpum. Michx. Fl. 2. 78. Poir. Suppl. 3. 693. Pursh, 378. Chois. in DC. Prodr. 1. 548. Spreng. Syst. 3. 347. Don, Mill. 1. 606. Torr. & Gray, Fl. 1. 163. Eat. & Wr. 281. Dietr. 4. 1235. Gray, Manual, 85.

Brathydium sphærocarpum & Chamænerium. Spach, Ill. cc. 365 & 444.

H. triplinerve. Vent. Hort. Cels, **t. 58.** Persoon, 2. 91. Poir. Suppl. 3. 701. Pursh, 378. Chois. in DC. Prodr. 1. 552. Spreng. Syst. 3. 349. Don, Mill. 1. 610. Torr. & Gray, Fl. 1. 166. Eat. & Wr. 280. — Excluded as not American by Torr. & Gray, Fl. 1. 674.

H. acutifolium; angulosum.
ambiguum; galioides.
amœnum; aureum.
amplexicaule; pyramidatum.
ascyroides; aureum, pyramidatum.
aspalathoides; fasciculatum.
axillare; galioides, Elodes petiolata.
Bonapartece; adpressum.
bracteatum; concinnum.
campanulatum; Elodes petiolata & Virginica.
Coris; fasciculatum.
denticulatum; angulosum.
emarginatum; Elodes Virginica.
fasciculatum; galioides.
fastigiatum; adpressum.
foliosum; prolificum.
frondosum; aureum.
fulgidum; fasciculatum.
galioides; densiflorum.
glaucum; myrtifolium.
gymnanthum; mutilum.
hedyotifolium & lævigatum; angulosum.
Lasianthus; Gordonia Lasianthus.
laurocerasifolium; Hopea tinctoria.
macrocarpum; pyramidatum.
maculatum & micranthum; corymbosum.
Michauxii; galioides.
Moranense; Canadense.
mutilum; anagalloides.
nitidum; fasciculatum.
H. nudicaule; Sarothra.
nudiflorum; cistifolium.
Nuttallii; setosum.
opacum; cistifolium.
paludosum; Elodes petiolata.
parviflorum; mutilum.
pauciflorum; Canadense.
petiolatum; Elodes petiolata.
pilosum; setosum.
procumbens; dolabriforme.
prolificum; densiflorum.
pseudoperforatum; perforatum.
punctatum; corymbosum, maculatum.
punctulosum; cistifolium.
quinquenervium; mutilum.
rosmarinifolium; cistifolium, myrtifolium.
rostratum; densiflorum.
Rugelianum; aureum.
rutilum; mutilum.
sessiliflorum; myrtifolium.
simplex; setosum.
sphærocarpon; ellipticum.
stellarioides; mutilum.
tenuifolium; fasciculatum.
tetrapetalum; Ascyrum amplexicaule.
thesiifolium; Canadense.
tubulosum; Elodes tubulosa.
virgatum; angulosum.
Virginicum; corymbosum, Elodes Virginica.

GUTTIFERÆ.

CLUSIA PLAVA, Linn. Nutt. Sylva, 2. 111, t. **77**. Chapman, 43.

C. rosea? Torr. & Gray, Fl. 1. 168.

TERNSTRŒMIACEÆ.

GORDONIA Lasianthus. Linn. Mant. 1. 570. Ellis, Phil. Trans. 60. 518, t. **11**; Letters, t. **2**. L'Her. Stirp. Nov. 156. Cav. Diss. 2. 307, t. **161**. Walter, 177. Ait. Hort. Kew. 2. 231. Bartram, Trav. 161. Lam. Dict. 2. 770; Ill. 3. 146, t. **594**, f. **1**. Swartz, Obs. Bot. 271. Willd. Spec. 3. 840. Michx. Fl. 2. 43. Sims, Bot. Mag. t. **668**. Nouv. Duham. 2. 236, t. **68**. Persoon, 2. 259. Michx. f. Arbr. Amer. 3. 131, t. **1**. Pursh, 451. Nutt. Genera, 2. 84. Elliott, 2. 171. DC. Prodr. 1. 528. Spreng. Syst. 3. 125. Don, Mill. 1. 573, f. **99**. Audub. Birds, t. **168**. Reich. Fl. Exot. t. **151**. Spach, Hist. Veg. 4. 79. Torr. & Gray, Fl. 1. 223. Eat. & Wr. 258. Loud. Arbor. 1. 379, f. **93**. Dietr. 4. 862. Gray, Genera, 2. 103, t. **140**, **141**; Manual, 104. Choisy, Mem. Ternst. & Camel. 51. Curtis, Bot. N. Car. 80. Chapman, 60. Baill. Hist. Pl. 4. 230, f. **254**, **255**.

Hypericum Lasianthus. Linn. Spec. 783. Hill, Veg. Syst. 15, t. **1**, f. **3**.

Gordonia pyramidalis. Salisb. Prodr. Stirp. 386.

G. pubescens. L'Her. Stirp. 156. Lam. Dict. 2. 770. Cav. Diss. 2. 308, t. **162**. Ait. Hort. Kew. 2. 231. Willd. Spec. 3. 841. Michx. Fl. 2. 43. Vent. Jard. Malm. t. **1** (Schrad. Neues Jour. Bot. 1806, 121). Nouv. Duham. 2. 237. Kön. & Sims, Ann. Bot. 1. 171. Persoon, 2. 259. Michx. f. Arbr. Amer. 3. 135, t. **2**. Pursh, 451. Nutt. Genera, 2. 84. Loisel. Herb. Amat. 4, t. **236**. Elliott, 2. 171. DC. Prodr. 1. 528. Spreng. Syst. 3. 125. Don, Mill. 1. 573. Audub. Birds, t. **185**. Spach, Hist. Veg. 4. 80. Torr. & Gray, Fl. 1. 223. Eat. & Wr. 258. Loud. Arbor. 1. 380, f. **94**. Dietr. 4. 862. Gray, Genera, 2. 102, t. **141**, f. **11–14**, & t. **142**. Choisy, l. c. 51. Chapman, 60. Wood, Cl.-Book, 274; Bot. & Fl. 65.

Franklinia Alatamaha. Marsh. Arbust. 49. Bartram, Trav. 16 & 467. Raf. Atl. Jour. 79, **fig.**

Gordonia Franklini. L'Her. Stirp. 156. Willd. Spec. 3. 841. Nouv. Duham. 2. 237. Persoon, 2. 259. Poir. Suppl. 2. 816.

Michauxia sessilis. Salisb. Prodr. Stirp. 386.

Lacathea florida. Salisb. Parad. Lond. t. **56**. Colla, Hort. Ripul. Appx. 1. 134.

STUARTIA pentagyna. L'Her. Stirp. 155, t. **74**. Willd. Spec. 3. 840. Nouv. Duham. 1. 15, t. **6**. Smith, Exot. Bot. 2. 101, t. **110**. Ait. f. Hort. Kew. 4. 234. Pursh, 452. Elliott, 2. 173. Torr. & Gray, Fl. 1. 224. Eat. & Wr. 445. Hook. Bot. Mag. t. **3918**. Gray, Genera, 2. 100, t. **139**; Manual, 104. Curtis, Bot. N. Car. 103. Chapman, 61.

Malachodendron ovatum. Cav. Diss. 2, t. **158**, f. **2**. Michx. Fl. 2. 43. Persoon, 2. 260. Lam. Dict. 3. 686; Ill. t. **593**, f. **1**. DC. Prodr. 1. 528. Spreng. Syst. 3. 126. Lindl. Bot. Reg. t. **1104**. Don, Mill. 1. 572. Spach, Hist. Veg. 4. 77. Loud. Arbor. 1. 377, f. **91**. Dietr. 4. 863.

Stuartia montana. Bartram, Trav. 334.

Malachodendron pentagynum. Choisy, Mem. Ternstr. 49.

S. Virginica. Cav. Diss. 2, t. **159**, f. **2**. Michx. Fl. 2. 43. Poir. Dict. 7. 441. Persoon, 2. 66. Pursh, 451. Lam. Ill. t. **593**, f. **1**. Elliott, 2. 172. DC. Prodr.

1. 528. Spreng. Syst. 3. 126. Don, Mill. 1. 572. Hook. Jour. Bot. 1. 198. Spach, Hist. Veg. 4. 78. Eat. & Wr. 445. Loud. Arbor. 1. 378, **f. 92.** Gray, Genera, 2. 99, **t. 138**; Manual, 104. Choisy, Mem. Ternst. 48. Curtis, Bot. N. Car. 103. Chapman, 61. Baill. Hist. Pl. 4. 230, **f. 256–260.**

S. Malachodendron. Linn. Spec. 2 ed. 982. Marsh. Arbust. 149. L'Her. Stirp. 153. **t. 73.** Walter, 176. Ait. Hort. Kew. 2. 459. Willd. Spec. 3. 840. Nouv. Duham. 1. 16. Audub. Birds, **t. 17.** Torr. & Gray, Fl. 1. 224. Dietr. 4. 863.

S. Marylandica. Donn, Hort. Cantab. 3 ed. Andr. Bot. Rep. 6, **t. 397.** Poir. Suppl. 5. 249.

MALVACEÆ.

ABUTILON Avicennæ, Gærtn. Torr. & Gray, Fl. 1. 230. Eat. & Wr. 111. Torrey, Fl. N. Y. 1. 113. Parry, Pl. Minn. 610. Darling. Fl. Cestr. 2 ed. 36. Engelm. Pl. Upp. Miss. 186. Chapman, 55. Gray, Manual, 101.

Sida Abutilon, Linn. Pursh, 453. Elliott, 2. 162. Torrey, Compend. 255. Beck, Bot. 58. Hook. Jour. Bot. 1. 198. Darling. Fl. Cestr. 397. Bigel. Fl. Bost. 3 ed. 276.

A. Californicum. Benth. Bot. Sulph. 8. Walp. Rep. 5. 95. Gray, Proc. Am. Acad. 5. 154. (Lower California.)

A. crispum. Don, Mill. 1. 502. Gray, Pl. Fendl. 23; Genera, 2. 67, **t. 126**; Pl. Wright. 1. 21; Pl. Thurb. 308. Griseb. Fl. Brit. W. Ind. 79. Torrey, Mex. Bound. 39. Chapman, 56.

Sida crispa. Linn. Spec. 685. Cav. Diss. 1. 30, **t. 7, f. 1,** & 2. 275, **t. 135, f. 2.** Ait. Hort. Kew. 2. 449. Willd. Spec. 3. 747; Enum. 721. Persoon, 2. 244. Pursh, 453. Elliott, 2. 161. DC. Prodr. 1. 469. Torr. & Gray, Fl. 1. 235. Eat. & Wr. 425.

Sida amplexicaulis. Lam. Dict. 1. 7.

Beloere crispa. Shuttlw.; Gray, Pl. Wright 1. 21.

Var. **imberbe.** Griseb. Fl. Brit. W. Ind. 80.

Sida imberbis. DC. Prodr. 1. 469.

A. trichodum. Rich. Bot. Cuba, 155, **t. 17.** Walp. Rep. 1. 324. Gray, Genera, 2. 67.

A. holosericeum. Scheele, Linn. 21. 471. Gray, Pl. Lindh. 162; Pl. Wright. 1. 20. Walp. Ann. 2. 157. Torrey, Mex. Bound. 39.

A. velutinum. Gray, Genera, 2. 67 & 230, **t. 125.**

A. hypoleucum. Gray, Pl. Wright. 1. 20. Walp. Ann. 4. 315.

A. Indicum. Don, Mill. 1. 504. See syn. in Griseb. Fl. W. Ind. 78.

Var. **hirtum.** Griseb. l. c.

Beloere cistiflora. Shuttlw. in herb.

A. Jacquini. Don, Mill. 1. 503. Chapman, 56.

Sida abutiloides. Jacq. Obs. 1. 17, **t. 7.**

Sida crassifolia. L'Her. Stirp. 125, **t. 60.**

Sida lignosa & tricuspidata. Cav. Diss. **t. 6, f. 2** & **5.**

Sida periplocifolia, var. *Caribæa.* Gray, Genera, 2. 67, not Rich.

A. peraffine. Shuttlw; Gray, Pl. Wright, 1. 20.

A. lignosum. Rich. Fl. Cuba, 152, with syn. Griseb. Fl. Brit. W. Ind. 79, and syn.

A. Palmeri. Gray, Proc. Am. Acad. 8. 289.

A. parvulum. Gray, Pl. Wright. 1. 21 & 2. 23. Walp. Ann. 4. 315. Torrey, Pac. R. Rep. 4. 72; Mex. Bound. 39. Porter, Fl. Col. 16.

A. pedunculare. HBK. Nov. Gen. & Spec. 5. 273. Griseb. Fl. W. Ind. 78.

Sida pedunculuris. DC. Prodr. 1. 469.

? *Sida Hulseana.* Torr. & Gray, Fl. 1. 233. Eat. & Wr. 425. Walp. Rep. 1. 316. Dietr. 4. 845.

? *A. Hulseanum.* Torrey; Gray, Pl. Fendl. 23, referring it doubtfully to *A. confertiflorum*, Rich. Chapman, 56. Wood, Bot. & Fl. 62.

A. permolle. Don, Mill. 1. 503. Gray, Pl. Wright. 1. 20. Griseb. Fl. W. Ind. 78.

Sida permollis. Willd. Enum. 725. DC. Prodr. 1. 471. Spreng. Syst. 3. 114.

A. Sonoræ. Gray, Pl. Wright. 2. 23; Pl. Thurb. 308. Walp. Ann. 4. 315.

A. Texense. Torr. & Gray, Fl. 1. 231. Eat. & Wr. 111. Gray, Pl. Lindh. 161; Pl. Wright. 1. 21 & 2. 23; Pl. Thurb. 308; Hall's Pl. Tex. 5. Torrey, Mex. Bound. 39. Young, Fl. Tex. 183.

A. Nuttallii. Torr. & Gray, Fl. 1. 231. Eat. & Wr. 111.

A. Thurberi. Gray, Pl. Thurb. 307. Walp. Ann. 4. 314. Torrey, Mex. Bound. 39.

A. Wrightii. Gray, Pl. Lindh. 162; Pl. Wright. 1. 20 & 2. 23; Hall's Pl. Tex. 5. Walp. Ann. 2. 157.

ALTHÆA OFFICINALIS, Linn. Bigel. Fl. Bost. 259. Torrey, Compend. 255; Fl. N. Y. 1. 112. Beck, Bot. 57. Darling. Fl. Cestr. 395. Torr. & Gray, Fl. 1. 229. Gray, Manual, 99.

ANODA cristata. Schlecht. in Linn. 11. 210.

Sida cristata. Linn. Spec. 2 ed. 964. Ait. Hort. Kew. 2. 444. Curtis, Bot. Mag. t. **330.** Willd. Spec. 3. 763.

A. Dilleniana. Cav. Diss. 1. 40, t. **11**, f. **1.** DC. Prodr. 1. 458.

A. triloba. Cav. Diss. 1. 39, t. **10**, f. **3.** DC. Prodr. 1. 458.

A. hastata. Cav. Diss. 1. 38, t. **11**, f. **2.** HBK. Nov. Gen. 5. 207. DC. Prodr. 1. 458. Schlecht. in Linn. 11. 214, with syn. Gray, Genera, 2. 64, t. **124**; Pl. Wright. 1. 20 & 2. 23. Griseb. Fl. Brit. W. Ind. 73. Torrey, Mex. Bound. 39.

Sida hastata. Willd. Spec. 3. 763. Sims, Bot. Mag. t. **1541.**

A. acerifolia. DC. Prodr. 1. 459, with syn.

A. parviflora. Cav. Icon. 5. 19, t. **431.** Link, Enum. 2. 207. DC. Prodr. 1. 459. Reich. Hort. Bot. t. **44.** Gray, Pl. Thurb. 308.

? *A. crenatiflora.* Orteg. Dec. 8. 96. Schlecht. in Linn. 11. 217, with syn.

Sida parviflora. Willd. Enum. 726.

A. Wrightii. Gray, Pl. Wright. 2. 22. Walp. Ann. 4. 310. Torrey, Mex. Bound. 39.

A. pentaschista. Gray, Pl. Wright. 2. 22. Walp. Ann. 4. 310. Torrey, Mex. Bound. 39.

CALLIRRHOE alcæoides. Gray, Pl. Fendl. 18; Genera, 2. 58; Manual, 100. Chapman, 54.

Sida alcæoides. Michx. Fl. 2. 44. Persoon, 2. 247. Poir. Suppl. 1. 34. Pursh, 453. DC. Prodr. 1. 474. Don, Mill. 1. 496. Torr. & Gray, Fl. 1. 234 & 681. Eat. & Wr. 425. Dietr. 4. 859. Wood, Bot. & Fl. 61.

Sida macrorhiza. James, Long's Exp. 2. 121.

Malva pedata, var. (?) *umbellata.* Torr. & Gray, Fl. 1. 227. Hook. in Lond. Jour. Bot. 6. 76.

C. macrorhiza. Gray, Pl. Fendl. 18; Proc. Acad. Philad. 1862, 161. Walp. Ann. 2. 150. Engelm. Pl. Upp. Miss. 186.

C. digitata. Nutt. in Jour. Acad. Philad. 2. 181 (Linn. Litt.-Ber. 1829, 41). Gray, Pl. Lindh. 160; Pl. Fendl. 17; Genera, 2. 51; Pl. Wright. 1. 15 & 2. 20; Hall's Pl. Tex. 5. Torrey, Marcy's Rep. 281. Torr. & Gray, Pac. R. Rep. 2. 160.

Nuttallia digitata. Barton, Fl. N. Am. 2. 74, t. **62.** Sweet, Brit. Fl. Gard. t. **129.** Sims, Bot. Mag. t. **2612.** Torrey, Ann. Lyc. N. Y. 2. 172. Hook. Exot. Fl. 3, t. **171.** Don, Mill. 1. 504. Spach, Hist. Veg. 3. 401.

Nuttallia pedata. Barton, Fl. N. Am. 2. 74. Torrey, Ann. Lyc. N. Y. 2. 171 (as *N. palmata*). Nutt.; Hook. Exot. Fl. 3, t. **172**; Jour. Bot. 1. 197. Don, Mill. 1. 504.

Nuttallia cordata. Lindl. Bot. Reg. 23, t. **1938.**

Malva digitata. Torr. & Gray, Fl. 1. 227. Eat. & Wr. 313. Walp. Rep. 1. 292. Dietr. 4. 817. Young, Fl. Tex. 181.

Malva pedata. Torr. & Gray, Fl. 1. 227, excl. var. Eat. & Wr. 318. Walp. Rep. 1. 292. Dietr. 4. 818. Torrey, Frem. Rep. 88; Emory's Rep. 138 & 407.

C. involucrata. Gray, Pl. Lindh. 159; Pl. Fendl. 15 & 17; Genera, 2. 54, t. **117**; Pl. Wright. 2. 20; Am. Jour. Sci. 2. 33. 407. Walp. Ann. 2. 150. Torrey, Marcy's Rep. 281; Stansb. Rep. 384; Pac. R. Rep. 4. 71; Mex. Bound. 38. Engelm. Pl. Upp. Miss. 186. Torr. & Gray, Pac. R. Rep. 2. 126 & 160. Porter, Fl. Col. 15.

Nuttallia involucrata. Nutt.; Torrey, in Ann. Lyc. N. Y. 2. 172.

Malva involucrata. Torr. & Gray, Fl. 1. 226. Eat. & Wr. 313. Dietr. 4. 817. Torrey, Frem. Rep. 88. Hook. Bot. Mag. t. **4681.** Lemaire, Jard. Fleur. t. **356.** Walp. Ann. 4. 208.

C. verticillata. Grönl. in Rev. Hort. 1862, 171 & t.

Var. **linearifoloba.** Gray, Proc. Acad. Philad. 1862, 161.

C. pulmata. Buckl. in Proc. Acad. Philad. 1861, 449.

Malva linearifoloba. Young, Fl. Tex. 180.

C. Papaver. Gray, Pl. Fendl. 17; Genera, 2. 54, t. **118, f. 5** (carpel); Hall's Pl. Tex. 5. Chapman, 53.

Malva Papaver. Cav. Diss. 1. 64, t. **15, f. 3.** Desr. in Lam. Dict. 3. 743. Willd. Spec. 3. 789. Persoon, 1. 251. DC. Prodr. 1. 431. Spreng. Syst. 3. 92. Torr. & Gray, Fl. 1. 226 & 681, excl. syn. Dietr. 4. 817. Hook. in Lond. Jour. Bot. 6. 76. Engelm. in Wisliz. Rep. 3. Wood, Cl.-Book, 267; Bot. & Fl. 60. Young, Fl. Tex. 181.

Malva nuttallioides. Croom, Am. Jour. Sci. 26. 312 & 28. 168.

Nuttallia Papaver. Grah. in Bot. Mag. t. **3287** (Ann. Sci. Nat. 2. 5. 254); Edinb. Phil. Jour. Jan. 1834. Hook. Jour. Bot. 1. 196; Lond. Jour. Bot. 6. 76. Spach, Hist. Veg. 3. 401. Don, Sweet's Brit. Fl. Gard. t. **279.** Maund, Bot. Gard. 11, t. **489.** Paxton, Mag. Bot. 6. 173 & t.

Nuttallia grandiflora. Paxt. Mag. Bot. 5. 217 & t. Ann. Gand, 1847, t. **167.**

C. pedata. Gray, Pl. Lindh. 160; Pl. Fendl. 17, excl. syn.; Genera, 2. 53, t. **118, f. 1-4**; Pl. Wright. 1. 15 & 2. 20. Rev. Hort. 6. 429, f. **148.**

C. triangulata. Gray, Pl. Fendl. 16; Genera, 2. 54, t. **118, f. 6, 7** (carpel); Manual, 108. Chapman, 53.

Malva triangulata. Leavenw. in Am. Jour. Sci. 7. 62. Eat. & Wr. 313. M. A. Curtis, Am. Jour. Sci. 2. 7. 406. Wood, Bot. & Fl. 60.

Nuttallia cordifolia. Nutt. in Jour. Acad. Philad. 7. 98.

Nuttallia triangulata. Hook. Jour. Bot. 1. 197.

Malva Houghtonii. Torr. & Gray, Fl. 1. 225 & 681. Eat. & Wr. 313. Walp. Rep. 1. 294. Dietr. 4. 813. Engelm. in Am. Jour. Sci. 46. 96.

FUGOSIA Drummondii. Gray, Pl. Wright. 1. 23. Walp. Ann. 4. 308.

Elidurandia Texana. Buckl. in Proc. Acad. Philad. 1861, 450; fide Gray, in same, 1862, 162. Walp. Ann. 7. 409.

GOSSYPIUM Davidsoni. Kellogg, Proc. Calif. Acad. 5. 82. (Lower Calif.)

G. —— ? Benth. Bot. Sulph. 8.

HIBISCUS aculeatus. Walter, 177. Poir. Suppl. 3. 220. Torr. & Gray, Fl. 1. 236. Chapman, 57. Wood, Cl.-Book, 269; Bot. & Fl. 62.

H. scaber. Michx. Fl. 2. 45. Persoon, 2. 257. Poir. Suppl. 3. 220. Pursh, 457. DC. Prodr. 1. 449. Elliott, 2. 169. Spreng. Syst. 3. 102. Don, Mill. 1. 478. Hook. Jour. Bot. 1. 197. Eat. & Wr. 269. Dietr. 4. 831.

H. Bancroftianus. Macf. Fl. Jam. 1. 70. Walp. Rep. 1. 306. Griseb. Fl. Brit. W. Ind. 85.

Achania pilosa. Swartz, Prodr. 102; Fl. Ind. 2. 1224. Ait. Hort. Kew. 2. 459. Spreng. Syst. 3. 100.

Malvaviscus pilosus & penduliflorus ? DC. Prodr. 1. 445.

Achania Poeppigii. Spreng. Syst. 3. 100.

Malvaviscus Floridanus. Nutt. in Jour. Acad. Philad. 7. 89. Torr. & Gray, Fl. 1. 229. Eat. & Wr. 314. Gray, Genera, 2. 78. Wood, Cl.-Book, 269.

Hibiscus truncatus. Rich. Fl. Cuba, 144, t. **16.** Walp. Rep. 1. 305.

H. Poeppigii. Garcke, Jahresb. Halle, 1850, 133.

H. Floridanus. Shuttlw.; Chapman, 58. Wood, Bot. & Fl. 63.

H. Californicus. Kellogg, Proc. Calif. Acad. 4. 202.

? *H. Moscheutos,* var. *occidentalis.* Torrey, Bot. Wilkes, 256.

H. cardiophyllus. Gray, Pl. Wright. 1. 22. Walp. Ann. 4. 304. Torrey, Mex. Bound. 40.

H. Carolinianus. Muhl. Cat. 65. Elliott, 2. 168. Hook. Jour. Bot. 1. 198. Torr. & Gray, Fl. 1. 237. Eat. & Wr. 269. Chapman, 58. Wood, Cl.-Book, 270; Bot. & Fl. 63.

H. coccineus. Walter, 177. Bartram, Trav. 104. Torr. & Gray, Fl. 1. 238. Eat. & Wr. 269. Chapman, 58. Wood, Cl.-Book, 270; Bot. & Fl. 63.

H. speciosus. Ait. Hort. Kew. 2. 456. Wendl. Hort. Herr. t. **11.** Curtis, Bot. Mag. t. **360.** Salisb. Prodr. Stirp. 383. Willd. Spec. 3. 822; Enum. 737. Michx. Fl. 2. 47. Persoon, 2. 256. Poir. Suppl. 3. 218. Pursh, 456. Barton, Fl. N. Am. 1. 33, t. **9.** Elliott, 2. 170. DC. Prodr. 1. 451. Spreng. Syst. 3. 105. Don, Mill. 1. 481. Spach, Hist. Veg. 3. 379. Dietr. 4. 834. Kolb, Rev. Hort. 1866, 230 & t.

H. Coulteri. Harv.; Gray, Pl. Wright. 1. 23 & 2. 24. Walp. Ann. 4. 305. Torrey, Mex. Bound. 40.

H. denudatus. Benth. Bot. Sulph. 7, t. **3.** Torrey, Pac. R. Rep. 5. 360.

Var. **involucellatus.** Gray, Pl. Wright. 1. 22 & 2. 23. Torrey, Pac. R. Rep. 7. 8; Mex. Bound. 40.

H. furcellatus. Desr. in Lam. Dict. 3. 358. DC. Prodr. 1. 449. Spreng. Syst. 3. 102. Wright & Sauv. Fl. Cub. 13.

H. grandiflorus. Michx. Fl. 2. 46. Persoon, 2. 257. Poir. Suppl. 3. 219. Pursh, 455. James, Cat. 185. Elliott, 2. 166. DC. Prodr. 1. 451. Torrey, Ann. Lyc. N. Y. 2. 172. Spreng. Syst. 3. 105. Audub. Birds, t. **20.** Don, Mill. 1. 481. Spach, Hist. Veg. 3. 380 Torr. & Gray, Fl. 1. 238. Eat. & Wr. 269. Dietr. 4. 834. Chapman, 58. Gray, Manual, 102.

H. incanus. Schrader, Sert. Hann. t. **24.** Wendl. Bot. Beobacht. 54; Hort. Herr. 4. 8, t. **24.** Kerner, Hort. Semp. t. **105.** Willd. Spec. 3. 807. Persoon, 2. 254. Poir. Suppl. 3. 216. Pursh, 455. Elliott, 2. 167. DC. Prodr. 1. 451. Spreng. Syst. 3. 105. Don, Mill. 1. 480. Hook. Jour. Bot. 1. 197. Torr. & Gray, Fl. 1. 237. Eat. & Wr. 269. Dietr. 4. 833. Chapman, 57.

H. Manihot, Linn. Michx. Fl. 2. 45. Pursh, 457. Don, Mill. 1. 457. Torr. & Gray, Fl. 1. 236. Eat. & Wr. 269.

? *H. Collinsianus.* Torr. & Gray, Fl. 1. 237, in part, not Nutt.

Abelmoschus Manihot, Medic. Wood, Cl.-Book, 270.

H. militaris. Cav. Diss. 352, t. **198, f. 2.** Willd. Spec. 3. 808. Persoon, 2. 254. Pursh, 456. Sims, Bot. Mag. t. **2385.** Elliott, 2. 168. DC. Prodr. 1. 451. Torrey, Compend. 256; Ann. Lyc. N. Y. 2. 172. Spreng. Syst. 3. 106. Don, Mill. 1. 480. Beck, Bot. 58. Hook. Jour. Bot. 1. 198. Spach, Hist. Veg. 3. 379. Torr. & Gray, Fl. 1. 238. Eat. & Wr. 269. Dietr. 4. 834. Chapman, 58. Gray, Manual, 102.

H. lævis. Scop. Del. Flor. 3. 35, t. **17.** Lam. Dict. 3. 862.

H. Virginicus. Walter, 177.

H. hastatus. Michx. Fl. 2. 45.

H. riparius. Persoon, 2. 254. Poir. Suppl. 3. 217.

H. Moscheutos. Linn. Spec. 693. Hill, Veg. Syst. 15, t. **21, f. 1.** Cav. Diss. 163, t. **65, f. 1.** Walter, 176. Willd. Spec. 3. 806. Michx. Fl. 2. 47. Persoon, 2. 254. Pursh, 455. Elliott, 2. 165. DC. Prodr. 1. 450. Torrey, Compend. 255; Fl. N. Y. 1. 115; Pac. R. Rep. 4. 72. Spreng. Syst. 3. 104. Sweet, Brit. Fl. Gard. t. **286.** Hook. Fl. Bor.-Am. 1. 107; Jour. Bot. 1. 197. Don, Mill. 1. 480. Beck, Bot. 57. Spach, Hist. Veg. 3. 377. Torr. & Gray, Fl. 1. 237. Eat. & Wr. 269. Dietr. 4. 833. Lindl. Bot. Reg. 83, t. **7.** Gray, Genera, 2. 82, t. **133**; Manual, 102. Fl. Serres, 1857, t. **1233.** Chapman, 57.

H. palustris. Linn. Spec. 693. Hill, l. c. f. **2.** Cav. Diss. 162, t. **65, f. 2.** Walter, 176. Ait. Hort. Kew. 2. 454. Lam. Dict. 3. 862. Willd. Spec. 3. 808; Enum. 735. Sims, Bot. Mag. t. **882.** Persoon, 2. 254. Pursh, 455. Bigel. Fl. Bost. 259. DC. Prodr. 1. 450. Elliott, 2. 165. Torrey, Compend. 256. Spreng. Syst. 3. 105. Hook. Fl. Bor.-Am. 1. 107; Jour. Bot. 1. 197. Don, Mill. 1. 480. Beck, Bot. 58. Lindl. Bot. Reg. 17, t. **1463.** Spach, Hist. Veg. 3. 378. Dietr. 4. 833.

H. ribifolius. Gray, Proc. Am. Acad. 5. 154. (Lower California.)

H. Syriacus, Linn. Gray, Manual, 102.

H. tiliaceus. Linn. Spec. 694. See syn. in Griseb. Fl. Brit. W. Ind. 86, under *Paritium.* — Chapman, 58.

H. Trionum, Linn. Beck, Bot. 58. Darling. Fl. Cestr. 396. Torrey, Fl. N. Y. 1. 115. Gray, Manual, 102.

H. pallidus, Raf.

H. Collinsianus. Nutt.; Torr. & Gray, Fl. 1. 237, in part. Eat. & Wr. 269. Dietr. 4. 833.

Abelmoschus Collinsianus. Gray, Genera, 2. 82. Wood, Cl.-Book, 271.

H. altheæfolius; Kosteletzkya altheæfolia.

clypeatus; Kosteletzkya Virginica.

Collinsianus; Manihot, Trionum.

H. Drummondii; Malvaviscus Drummondii.

Floridanus; Bancroftianus.

hastatus & lævis; militaris.

H. Moscheutos; Californicus.
pallidus; Trionum.
palustris; Moscheutos.
pentaspermus; Kosteletzkya Virginica.
Poeppigii; Bancroftianus.
riparius; militaris.

H. scaber; aculeatus.
smilacifolius; Kosteletzkya Virgi
speciosus; coccineus.
trisectus; Jatropha urens.
truncatus; Bancroftianus.
Virginicus; militaris, Kosteletzy Virginica.

INGENHOUZIA triloba. DC. Prodr. 1. 474.

Thurberia thespesioides. Gray, Pl. Thurb. 308 (Regensb. Flora, 38. 586). rey, Mex. Bound. 40, t. 6. Benth. & Hook. Genera, 1. 209 & 982. (Sonora.)

KOSTELETZKYA altheæfolia. Gray, Pl. Wright. 1. 23.

Hibiscus altheæfolius. Shuttlw. in herb.

K. Virginica, var. *altheæfolia.* Chapman, 57.

K. Coulteri. Gray, Pl. Wright. 1. 23. Walp. Ann. 4. 304. (Northern Mexic

K. digitata. Gray, Proc. Am. Acad. 8. 289.

K. paniculata. Benth. Pl. Hartw. 285. Torrey, Mex. Bound. 40. (Nortl Mexico.)

K. Virginica. Gray, Genera, 2. 80, t. 132; Pl. Thurb. 302; Manual, 102. C man, 57. A. H. Smith, Proc. Acad. Philad. 1867, 18.

Hibiscus Virginicus. Linn. Spec. 697. Hill, Veg. Syst. 15, t. 27, f. 4. J Icon. Rar. 1. 14, t. 142; Obs. Bot. 1. 123. Lam. Dict. 3. 348. Willd. Spec. 3. Michx. Fl. 2. 46. Persoon, 2. 257. Ait. f. Hort. Kew. 4. 230. Pursh, 456. Ell 2. 167. DC. Prodr. 1. 447. Torrey, Compend. 256; Fl. N. Y. 1. 114. Don, 1 1. 477. Beck, Bot. 57. Hook. Jour. Bot. 1. 197. Spach, Hist Veg. 3. Audubon, Birds, t. 425. Torr. & Gray, Fl. 1. 236. Eat. & Wr. 269. D 4. 829.

Hibiscus clypeatus. Walter, 177.

? *Malva abutiloides.* Pursh, 454, not Linn. Elliott, 2. 164. Torr. & Gray 1. 228. Eat. & Wr. 313.

Hibiscus pentaspermus. Nutt. in Am. Jour. Sci. 5. 298, not Bert.

Pavonia Virginica. Spreng. Syst. 3. 98.

Var. **smilacifolia.** Chapman, 57.

Hibiscus smilacifolius. Shuttlw. in herb.

K. smilacifolia. Gray, Pl. Wright. 1. 23.

LAVATERA assurgentiflora. Kellogg, Proc. Calif. Acad. 1. 11 & 14. Bol Cat. 7. Brew. & Wats. Bot. Calif. 1. 83.

L. insularis. Watson, Proc. Am. Acad. 12. 249.

L. occidentalis. Watson, l. c. 11. 113 & 124. Brew. & Wats. l. c. (Guadalup

L. venosa. Watson, l. c. 12. 249.

MALACHRA palmata. Moench, Meth. 615. DC. Prodr. 1. 441; Pl. Rar. 4. 25, t. 5. Griseb. Fl. Brit. W. Ind. 81.

? *M. Mexicana.* Schrad. Sem. Hort. Goett. 1830 (Linn. Litt.-Ber. 1831, Schlecht. in Linn. 11. 354. Gray, Genera, 2. 74, t. 129.

MALVA BOREALIS, Wallm. Gray, Genera, 2. 50, t. 116, f. 5, 6 (fruit); Fendl. 15 & 16. Torrey, Pac. R. Rep. 4. 71; Mex. Bound. 38. Newberry, Pa Rep. 6. 68. Cooper, same, 12. 57.

M. obtusa. Torr. & Gray, Fl. 1. 225. Eat. & Wr. 313. Walp. Rep. 1. Dietr. 4. 813.

M. MOSCHATA, Linn. Gray, Manual, 99.

M. ROTUNDIFOLIA, Linn. Pursh, 454. Bigel. Fl. Bost. 259. Elliott, 2. 163. Torrey, Compend. 255; Fl. N. Y. 1. 111. Hook. Fl. Bor.-Am. 1. 106; Journ. Bot. 1. 196. Beck, Bot. 57. Darling. Fl. Cestr. 395. Torr. & Gray, Fl. 1. 225. Eat. & Wr. 313. Gray, Genera, 2. 50, t. **116**; Pl. Fendl. 15 & 16; Manual, 99. Chapman, 53. Coulter, Hayd. Rep. 1872, 762.

M. SYLVESTRIS, Linn. Beck, Bot. 57. Darling. Fl. Cestr. 394. Torrey, Fl. N. Y. 1. 112. Gray, Manual, 99.

M. abutiloides; Kosteletzkya Virginica.
Americana; Malvastrum tricuspidatum.
angustifolia; Sphæralcea angustifolia.
aurantiaca; Malvastrum Wrightii.
Californica; Sida hederacea.
Caroliniana; Modiola multifida.
coccinea & Creeana; Malvastrum coccineum.
digitata; Callirrhoe digitata.
crivocarpa; Modiola multifida.
fasciculata; Malvastrum Munroanum.
hederacea; Sida hederacea.
Houghtonii; Callirrhoe triangulata.
involucrata; Callirrhoe involucrata.
LeContei; Pavonia hastata.
Lindheimeriana; Malvastrum tricuspidatum.
linearriloba; Callirrhoe involucrata.
M. malachroides; Sidalcea malachroides.
Munroana; Malvastrum Munroanum.
nuttallioides; Callirrhoe Papaver.
obtusa; borealis.
ovata; Malvastrum spicatum.
Papaver; Callirrhoe Papaver.
pedata; Callirrhoe alcæoides & digitata.
plicata; Sida hederacea.
polystachya; Malvastrum spicatum.
prostrata; Modiola multifida.
rivularis; Sphæralcea rivularis.
spicata; Malvastrum spicatum.
stellata; Sphæralcea angustifolia.
subhastata; Malvastrum tricuspidatum.
triangulata; Callirrhoe triangulata.
tricuspidata; Malvastrum tricuspidatum.

MALVASTRUM angustum. Gray, Pl. Fendl. 22; Manual, 101. Walp. Ann. 2. 152. Chapman, 54.

Sida hispida. Pursh, 452. Elliott, 2. 159. DC. Prodr. 1. 472. Don, Mill. 1. 498. Hook. Jour. Bot. 1. 198. Torr. & Gray, Fl. 1. 232 & 681. Eat. & Wr. 425. Fisch. & Mey. Ind. Sem. Petr. 7. 55 (Linn. Litt.-Ber. 1840, 120; Ann. Sci. Nat. 2. 16. 58).

M. coccineum. Gray, Pl. Fendl. 21 & 24; Genera, 2. 60, t. **121**; Pl. Wright. 1. 16 & 2. 20; Pac. R. Rep. 12. 41; Manual, 101. Walp. Ann. 2. 152. Engelm. Pl. Upp. Miss. 186. Torrey, Marcy's Rep. 281; Stansb. Rep. 384; Pac. R. Rep. 4. 71 & 7. 8; Mex. Bound. 38. Torr. & Gray, Pac. R. Rep. 2. 161. Pl. Bourgeau, 255. Porter, Hayd. Rep. 1870, 473; 1871, 479; Fl. Col. 16. Watson, King's Rep. 5. 47; Pl. Wheel. 6. Coulter, Hayd. Rep. 1872, 762. Rothr. Pl. Wheel. 35.

Malva coccinea. Nutt. Fras. Cat.; Genera, 2. 81. James, Long's Exped. 2. 140. Torrey, Ann. Lyc. N. Y. 2. 171. Engelm. Wisliz. Rep. 3.

Cristaria coccinea. Pursh, 454. Sims, Bot. Mag. t. **1673**. Poir. Suppl. 5. 634. Baldwin, Cat. 337. Don, Mill. 1. 489. Nees, Pl. Wied. 5.

Sida coccinea. DC. Prodr. 1. 465. Spreng. Syst. 3. 121. Hook. Fl. Bor.-Am. 1. 108; Lond. Jour. Bot. 6. 77. Torr. & Gray, Fl. 1. 235. Eat. & Wr. 425. Torrey, Nicol. Rep. 147; Frem. Rep. 88; Emory's Rep. 138 & 407. Dietr. 4. 857.

Var. **grossulariæfolium.** Torrey, Stansb. Rep. 384. Gray, Pl. Wright. 1. Durand, Fl. Utah, 160. Watson, King's Rep. 5. 47.

Malva Creeana. Graham in Bot. Mag. t. **3698.** Paxton, Mag. Bot. 6. 55 Walp. Rep. 1. 293.

Sida grossulariæfolia. Hook. & Arn. Bot. Beechey, 326. Torr. & Gray, Fl. 1. Walp. Rep. 1. 316. Dietr. 4. 849.

Malvastrum grossulariæfolium. Gray, Pl. Fendl. 21.

Sphæralcea pedata. Torrey; Gray, Pl. Fendl. 23.

Var. **dissectum.** Gray, l. c. 24; Pl. Wright. 1. 17. Walp. Rep. 1. 316. W son, Pl. Wheel. 6.

Sida dissecta. Nutt.; Torr. & Gray, Fl. 1. 235. Hook. & Arn. Bot. Beech 327. Eat. & Wr. 425. Walp. l. c. Dietr. 4. 849. Hook. Lond. Journ. Bot. 6.;

M. Coulteri. Watson, Proc. Am. Acad. 11. 125. Brew. & Wats. Bot. Calif. 1.

M. exile. Gray, Ives' Rep. 8; Proc. Am. Acad. 7. 333. Brew. & Wats. l. c.

M. leptophyllum. Gray, Pl. Wright. 1. 17 & 2. 20; Pl. Thurb. 300. Walp. A 4. 299. Torrey, Mex. Bound. 38.

M. marrubioides. Dur. & Hilg. in Jour. Acad. Philad. 2. 8. 38; Pac. R. I 5. 6, t. 2. Walp. Ann. 4. 300 & 7. 390. Boland. Cat. 7.

M. Munroanum. Gray, Pl. Fendl. 21; Ives's Rep. 8. Cooper, Pac. R. Rep. 12. Torrey, Mex. Bound. 38; Bot. Wilkes, 254. Anderson, Cat. 118. Boland. Ca Watson, King's Rep. 5. 47; Pl. Wheel. 6. Porter, Hayd. Rep. 1871, 479. Coul same, 1872, 762.

Malva Munroana. Dougl.; Lindl. Bot. Reg. 16, t. **1306.** Hook. Fl. Bor.-A 1. 106; Bot. Mag. t. **3537.** Don, Mill. 1. 464. Maund, Bot. Gard. 10, t. 4 Paxton, Mag. Bot. 4. 264, & t. Torr. & Gray, Fl. 1. 226. Eat. & Wr. 313. W Rep. 1. 294. Loud. Arbor. 4. 2538, f. **2411.** Dietr. 4. 816. Torrey, Emory's I 138. Burnett, Encyc. Pl. t. **217.**

Nuttallia Munroana. Nutt. in Jour. Acad. Philad. 7. 16.

Sphæralcea Munroana. Spach, Hist. Veg. 3. 353.

M. rotundifolium. Gray, Proc. Am. Acad. 7. 333. Brew. & Wats. l. c. 85.

M. spicatum. Gray, Pl. Fendl. 22. Griseb. Fl. Brit. W. Ind. 72.

Malva spicata. Linn. Spec. 2 ed. 967. Cav. Diss. 1. 80, t. **20,** f. **4.**

Malva orata. Cav. Diss. 1. 81, t. **20,** f. **2.**

Malva polystachya. Cav. Diss. 2. 281, t. **138,** f. **3.**

M. splendidum. Kellogg, Proc. Calif. Acad. 1. 65. Brew. & Wats. l. c.

M. Thurberi. Gray, Pl. Thurb. 307. Walp. Ann. 4. 299. Torrey, Mex. Bot 38. Brew. & Wats. l. c.

Malva fasciculata. Nutt.; Torr. & Gray, Fl. 1. 225. Eat. & Wr. 313. W Rep. 1. 294. Dietr. 4. 817.

M. tricuspidatum. Gray, Pl. Wright. 1. 16; Bot. Wilkes' Expl. Exped. 1. 1 with syn. Griseb. Fl. Brit. W. Ind. 72, with syn. Chapman, 54. A. H. Sm Proc. Acad. Philad. 1867, 18. Wood, Bot. & Fl. 61.

Malva Americana. Linn. Spec. 687. Cav. Diss. 1. 80, t. **22,** f. **2.** DC. Pr 1. 430.

Malva tricuspidata. Ait. f. Hort. Kew. 4. 210. DC. Prodr. 1. 430, with s Spreng. Syst. 3. 88.

Malva subhastata. Cav. Diss. 1. 72, t. **21,** f. **3.** DC. Prodr. 1. 430. St. Hil. Bras. 1. 214.

Sida spirlæfolia. Willd. Enum. Suppl. 49. DC. Prodr. 1. 472.

Sida bracteolata & carpinoides. DC. Prodr. 1. 460 & 461.

? *Malope malacoides.* Walter, 176. Pursh, 455. Nutt. Genera, 2. 82. Elliott, 2. 164. Torr. & Gray, Fl. 1. 224.

Malvastrum carpinifolium. Gray, Pl. Lindh. 161; Pl. Fendl. 22.

Malva Lindheimeriana. Scheele in Linn. 21. 470.

Malvastrum (?) *Lindheimerianum.* Walp. Ann. 2. 153.

Malvastrum Americanum. Torrey, Mex. Bound. 38.

M. Wrightii. Gray, Pl. Lindh. 160; Pl. Fendl. 21; Genera, 2. 60 & 230, t. **131.** Walp. Ann. 2. 152.

Malva aurantiaca. Scheele, Linn. 21. 469.

Malvastrum (?) *aurantiacum.* Walp. Ann. 2. 153.

M. Americanum; tricuspidatum.
aurantiacum; Wrightii.
carpinifolium; tricuspidatum.
Fremontii; Sphæralcea Lindheimeri.
grossulariæfolium; coccineum.
M. linearifolium; Sida fasciculata.
Lindheimerianum; tricuspidatum.
pedatifidum; Sphæralcea Fendleri.
Thurberi; Munroanum.

MALVAVISCUS Drummondii. Torr. & Gray, Fl. 1. 230. Eat. & Wr. 314. Engelm. & Gray, Pl. Lindh. 6. Gray, Genera, 2. 78, t. **131**; Pl. Wright. 1. 22; Hall's Pl. Tex. 5. Torrey, Mex. Bound. 40. Wood, Cl.-Book, 269.

Pavonia Drummondii. Torr. & Gray, Fl. 1. 682. Walp. Rep. 1. 208. Dietr. 4. 824. Gray, Genera, 2. 76.

Hibiscus Drummondii. Young, Fl. Texas, 186.

MODIOLA multifida. Moench, Meth. 620. Torr. & Gray, Fl. 1. 229. Scheele, Rõm. Texas, 434. Chapman, 56. A. H. Smith, Proc. Acad. Philad. 1867, 18. Gray, Manual, 102; Hall's Pl. Tex. 5.

Malva Caroliniana. Linn. Spec. 688. Cav. Diss. 1. 58, t. **15**, f. **1.** Hill, Veg. Syst. 16, t. **3**, f. **2.** Walter, 176. Lam. Dict. 3. 739. Ait. Hort. Kew. 2. 448. Willd. Spec. 3. 784; Enum. 731. Michx. Fl. 2. 44. Persoon, 2. 251. Pursh, 454. Elliott, 2. 163. DC. Prodr. 1. 435. Spreng. Syst. 3. 92. Hook. Jour. Bot. 1. 196. Dietr. 4. 817. Regel, Ind. Sem. Petr. 1860, 50.

Malva prostrata. Cav. Diss. 1. 58, t. **16**, f. **3.** DC. Prodr. 1. 436.

Malva eriocarpa. DC. Prodr. 1. 436.

Modiola Caroliniana. Don, Mill. 1. 466. Gray, Genera, 2. 72, t. **128.** Griseb. Fl. Brit. W. Ind. 72.

NAPÆA dioica. Linn. Spec. 686. Hill, Veg. Syst. 15, t. **50**, f. **2.** Gray, Pl. Fendl. 20; Genera, 2. 56, t. **119**; Manual, 100.

N. scabra. Linn. Mant. 2. 435. Ait. Hort. Kew. 3. 417. Lam. Dict. 4. 421; Ill. 3. 138, t. **579**, f. **2.** Persoon, 2. 242.

Sida dioica. Cav. Diss. 2. 278, t. **132**, f. **2.** Willd. Spec. 3. 766; Enum. 726. Ait. f. Hort. Kew. 4. 206. Pursh, 453. DC. Prodr. 1. 466. Torrey, Compend. 255. Spreng. Syst. 3. 122. Don, Mill. 1. 496. Beck, Bot. 58. Spach, Hist. Veg. 3. 400. Torr. & Gray, Fl. 1. 234 & 681. Eat. & Wr. 425. Dietr. 4. 849.

PAVONIA hastata. Cav. Diss. 1. 138, t. **47**, f. **2.** DC. Prodr. 1. 443. Spreng. Syst. 3. 98. Reich. Hort. Bot. 3. 11, t. **227.**

P. LeContei. Torr. & Gray; Gray, Pl. Fendl. 16; Genera, 2. 76. Wood, Bot. & Fl. 62.

Malva LeContei. Buckley, Am. Jour. Sci. 45. 176.

Pavonia Jonesii. Feay; Wood, Cl.-Book, 269.

P. lasiopetala. Scheele, Linn. 21. 470.

P. Wrightii. Gray, Genera, 2. 76 & 230, t. **130**; Pl. Lindh. 161; Pl. Wrigh[illegible] 1. 22 & 2. 24. Torrey, Mex. Bound. 39.

SIDA carpinifolia. Linn. f. Suppl. 307. Cav. Diss. 1. 21, t. **2**, f. **3** & t. **134**, f. [illegible] Jacq. Icon. Rar. 1, t. **135**. DC. Prodr. 1. 461. Griseb. Fl. Brit. W. Ind. 73, wi[illegible] syn. See syn. also in Gray, Bot. Wilkes' Expl. Exped. 1. 159; Masters, Hook. [illegible] Brit. Ind. 1. 323; and Oliver, Fl. Trop. Afr. 1. 180.

Var. **brevicuspidata.** Griseb. l. c.

S. acuta. Burm. Fl. Ind. 147. Gray, Pl. Wright. 1. 19; Bot. Wilkes' Expl. Exped. 1. 159, keeping it distinct.

S. stipulata. Cav. Diss. 1. 22, t. **3**, f. **10**. A. H. Smith, Proc. Acad. Phila. 1867, 18. Wood, Bot. & Fl. 61.

S. glabra. Nutt. in Jour. Acad. Philad. 7. 90. Torr. & Gray, Fl. 1. 232. Eat. & Wr. 425. Walp. Rep. 1. 316. Dietr. 4. 842.

S. ciliaris. Linn. Spec. 2 ed. 961. Cav. Diss. 1. 21, t. **3**, f. **9** & t. **127**, f. **2**. DC. Prodr. 1. 461. Chapman, 55. Griseb. Fl. W. Ind. 73. Wood, Bot. & Fl. 61.

S. involucrata. Richard, Fl. Cub. 162.

S. cuneifolia. Gray, Pl. Lindh. 105; Pl. Wright. 1. 18. Walp. Ann. 2. 155.

S. Elliottii. Torr. & Gray, Fl. 1. 231 & 681. Walp. Rep. 1. 315. Dietr. 4. 842. Gray, Pl. Wright. 2. 21; Manual, 101. Torrey, Mex. Bound. 39. Chapman, 55.

S. gracilis. Elliott, 2. 159, not Rich. Eat. & Wr. 425.

S. fasciculata. Torr. & Gray, Fl. 1. 231. Eat. & Wr. 425. Walp. Rep. 1. 315. Dietr. 4. 842. Gray, Pl. Lindh. 163.

S. anomala, var. *Mexicana.* Moric. Pl. Nouv. 36, t. **24**.

Malvastrum linearifolium. Buckl. in Proc. Acad. Philad. 1861, 449; fide Gray in same, 1862, 161.

S. filiformis. Moric. Pl. Nouv. 38, t. **25**. Walp. Rep. 1. 321. Seem. Bot. Herald, 271.

? *S. diffusa.* HBK. Nov. Gen. 5. 257. DC. Prodr. 1. 463.

S. filicaulis. Torr. & Gray, Fl. 1. 232. Eat. & Wr. 425. Walp. Rep. 1. 316. Dietr. 4. 844. Gray, Pl. Lindh. 163; Pl. Wright. 2. 22; Hall's Pl. Tex. 5. Torrey, Mex. Bound. 38. Young, Fl. Texas, 183.

S. filipes. Gray, Pl. Lindh. 164; Pl. Wright. 1. 19. Walp. Ann. 2. 155. Torrey, Mex. Bound. 38.

? *S. venusta.* Schlecht. in Linn. 11. 365.

S. hederacea. Torrey; Gray, Pl. Fendl. 23; Pl. Wright. 1. 18 & 2. 21; Ives's Rep. 8. Torrey, Pac. R. Rep. 5. 360; Mex. Bound. 38; Bot. Wilkes, 256. Watson, King's Rep. 5. 48; Pl. Wheel. 7.

Malva hederacea. Dougl.; Hook. Fl. Bor.-Am. 1. 107. Torr. & Gray, Fl. 1. 227. Eat. & Wr. 313. Walp. Rep. 1. 292. Dietr. 4. 812. Newberry, Pac. R. Rep. 6. 68.

Malva Californica. Presl, Rel. Haenk. 2. 121. Walp. Rep. 1. 295. Dietr. 4. 818.

Malva plicata. Nutt.; Torr. & Gray, Fl. 1. 227. Eat. & Wr. 213.

Sida (?) obliqua. Nutt.; Torr. & Gray, Fl. 1. 233 & 681. Eat. & Wr. 425. Walp. Rep. 1. 316. Dietr. 4. 845.

S. lepidota. Gray, Pl. Wright. 1. 18 & 2. 21. Torrey, Pac. R. Rep. 4. 72; Mex. Bound. 39. Walp. Ann. 4. 311.

S. Lindheimeri. Engelm. & Gray, Pl. Lindh. 5 & 81. Walp. Ann. 2. 154. Chapman, 55. Gray, Hall's Pl. Tex. 5.

S. longipes. Gray, Pl. Wright. 1. 19 & 2. 21. Walp. Ann. 4. 311. Torrey, Mex. Bound. 39.

S. Napæa. Cav. Diss. 2. 277, t. **132**, f. **1**. Willd. Spec. 3. 766; Enum. 726. Ait. f. Hort. Kew. 4. 206. Pursh, 453. Sims, Bot. Mag. t. **2193**. DC. Prodr. 1. 466. Torrey, Compend. 255. Spreng. Syst. 3. 122. Don, Mill. 1. 496. Beck, Bot. 58. Spach, Hist. Veg. 3. 399. Torr. & Gray, Fl. 1. 233. Eat. & Wr. 425. Dietr. 4. 849. Gray, Pl. Fendl. 23; Pl. Wright. 1. 20; Manual, 101.

Napæa hermaphrodita. Linn. Spec. 686. Hill, Veg. Syst. 15, t. **50**, f. **1**. St. Hil. Fam. Nat. 2. 61. Barton, Elem. Bot. Appx. 29, t. **20**.

Napæa lævis. Linn. Mant. 2. 435. Ait. Hort. Kew. 3. 417. Lam. Ill. 3. 138, t. 579, f. 1. Poir. in Lam. Dict. 4. 420. Persoon, 2. 242.

Althæa ricinifolia. Herm. Hort. Lugd. 22, t. **23**.

S. physocalyx. Gray, Pl. Lindh. 163; Pl. Wright. 1. 20 & 2. 22; Hall's Pl. Tex. 5. Walp. Ann. 2. 155. Torrey, Mex. Bound. 39.

S. rhombifolia. Linn. Spec. 684. See syn. in Gray, Bot. Wilkes' Expl. Exped. 1. 158; Griseb. Fl. Brit. W. Ind. 74; Masters, Hook. Fl. Brit. Ind. 1. 323. — Cav. Diss. 1. 23, t. **3**, f. **12**. Michx. Fl. 2. 43. Pursh, 462. Elliott, 2. 160. HBK. Nov. Gen. 5. 261. DC. Prodr. 1. 462. Don, Mill. 1. 492. Hook. Jour. Bot. 1. 198. Torr. & Gray, Fl. 1. 232. Eat. & Wr. 425. C. A. Meyer, Ind. Sem. Petr. 9. 87 (Linn. 18. 196). Chapman, 55. Wood, Cl.-Book, 268; Bot. & Fl. 61.

S. stipulata. Chapman, 55, not Cav.

S. Elliottii, var. (?) Gray, Proc. Am. Acad. 5. 154.

Var. **retusa.** Griseb. Fl. Brit. W. Ind. 75.

S. retusa, Linn. Cav. Diss. 1. 18, t. **3**, f. **4**, & t. **131**, f. **2**.

S. spinosa. Linn. Spec. 683. See syn. in Griseb. l. c. 74; Masters, Hook. Fl. Brit. Ind. 1. 323. — Walter, 176. Cav. Diss. 1. 11, t. **1**, f. **9**. Michx. Fl. 2. 43. Pursh, 452. Elliott, 2. 161. DC. Prodr. 1. 460. Torrey, Compend. 254; Fl. N. Y. 1. 113; Pac. R. Rep. 4. 72. Beck, Bot. 58. Hook. Jour. Bot. 1. 198. Darling. Fl. Cestr. 307. Torr. & Gray, Fl. 1. 231. Eat. & Wr. 424. C. A. Meyer, Ind. Sem. Petr. 9. 87 (Linn. 18. 196). Gray, Pl. Fendl. 23; Genera, 2. 62, t. **123**; Manual, 101. Chapman, 54.

Var. **angustifolia.** Griseb. l. c. 74.

S. angustifolia. Lam. Dict. 1. 4. Medicus, Bot. Beobacht. 1783, 192. Cav. Diss. 1. 14, t. **2**, f. **2**. DC. Prodr. 1. 459. Gray, Pl. Wright. 1. 19 & 2. 21.

S. heterocarpa. Engelm.; Gray, Pl. Lindh. 163. Walp. Ann. 2. 154.

S. supina. L'Her. Stirp. t. **52**. See syn. in Griseb. Fl. Brit. W. Ind. 75. — Chapman, 54.

S. pilosa & ovata. Cav. Diss. t. **1**, f. **8** & t. **196**, f. **2**.

S. tragiæfolia. Gray, Pl. Lindh. 164. Walp. Ann. 2. 155.

S. abutiloides; Abutilon Jacquini.
Abutilon; Abutilon Avicennæ.
acuta; carpinifolia.
alcæoides; Callirrhoe alcæoides.
amplexicaulis; Abutilon crispum.
angustifolia; spinosa.
anomala; fasciculata.
bracteolata; Malvastrum tricuspidatum.
S. Californica; Sidalcea humilis.
carpinoides; Malvastrum tricuspidatum.
coccinea; Malvastrum coccineum.
crassifolia; Abutilon Jacquini.
crispa; Abutilon crispum.
cristata; Anoda cristata.
delphinifolia; Sidalcea humilis.
diffusa; filiformis.

S. dioica; Napæa dioica.
diploscypha; Sidalcea diploscypha.
dissecta; Malvastrum coccineum.
Elliottii; rhombifolia.
filicaulis; filiformis.
glabra; carpinifolia.
gracilis; Elliottii.
grossulariæfolia; Malvastrum coccineum.
hastata; Anoda hastata.
heterocarpa; spinosa.
hispida; Malvastrum angustum.
Hulseana; Abutilon pedunculare.
imberbis; Abutilon pedunculare.
involucrata; ciliaris.
lignosa; Abutilon Jacquini.
malvæflora; Sidalcea humilis & malvæflora.

S. macrorhiza; Callirrhoe alcæoides.
obliqua; hederacea.
Oregana; Sidalcea malvæflora.
ovata; supina.
parviflora; Anoda parviflora.
pedunculariis; Abutilon pedunculare.
peraffinis & *periplocifolia*; Abutilon Jacquini.
permollis; Abutilon permolle.
pilosa; supina.
retusa; rhombifolia.
Sabeana; Melochia pyramidata.
spirlæfolia; Malvastrum tricuspidatum.
stellata; Sphæralcea angustifolia.
stipulata; carpinifolia, rhombifolia.
tricuspidata; Abutilon Jacquini.
venusta; filipes.

SIDALCEA candida. Gray, Pl. Fendl. 20 & 24; Genera, 2. 58, **t. 120, f. 9** (flower); Proc. Acad. Philad. 1863, 59. Walp. Ann. 2. 151. Torr. & Gray, Pac. R. Rep. 2. 126, **t. 2.** Watson, King's Rep. 5. 46. Porter, Fl. Col. 16.

S. diploscypha. Gray, Pl. Fendl. 19; Genera, 2. 58, **t. 120, f. 1–8.** Benth. Pl. Hartw. 300. Torrey, Pac. R. Rep. 4. 71. Kellogg, Proc. Calif. Acad. 1. 53. Boland. Cat. 7.

Sida diploscypha. Torr. & Gray, Fl. 1. 234 & 682. Hook. & Arn. Bot. Beechey, 326, **t. 76.** Eat. & Wr. 425. Walp. Rep. 1. 316. Dietr. 4. 849.

S. Hartwegi. Gray, Pl. Fendl. 20. Benth. Pl. Hartw. 300. Walp. Ann. 2. 151. Durand, Pl. Pratten. 84. Torrey, Pac. R. Rep. 4. 72. Newberry, same, 6. 68.

S. delphinifolia. Gray, Pl. Fendl. 19; Genera, 2. 58, **t. 120, f. 10–12.** Benth. Pl. Hartw. 300.

S. hirsuta. Gray, Pl. Wright. 1. 16. Torrey, Pac. R. Rep. 4. 72. Newberry, same, 6. 68. Walp. Ann. 4. 309.

S. humilis. Gray, Pl. Fendl. 20. Walp. Ann. 2. 151. Torrey, Pac. R. Rep. 4. 72 & 7. 8. Brew. & Wats. Bot. Calif. 1. 84.

Sida delphinifolia. Nutt.; Torr. & Gray, Fl. 1. 235. Eat. & Wr. 425. Walp. Rep. 1. 316. Dietr. 4. 849.

? *Sida Californica.* Nutt.; Torr. & Gray, Fl. 1. 233. Eat. & Wr. 425. Walp. Rep. 1. 316.

Sida malvæflora. Hook. & Arn. Bot. Beechey, 326.

? *Sidalcea Californica.* Gray, Pl. Fendl. 19.

S. malachroides. Gray, Proc. Am. Acad. 7. 332.

Malva malachroides. Hook. & Arn. Bot. Beechey, 326. Torr. & Gray, Fl. 1. 681. Walp. Rep. 1. 294. Dietr. 4. 813. Gray, Pl. Fendl. 16.

S. malvæflora. Gray, Pl. Wright. 1. 16 & 2. 20; Pl. Thurb. 301; Proc. Bost. Soc. Nat. Hist. 7. 146; Proc. Acad. Philad. 1863, 59; Proc. Am. Acad. 8. 378. Benth. Pl. Hartw. 300. Torrey, Sitgr. Rep. 156; Stansb. Rep. 384; Pac. R. Rep. 4. 72 & 7. 8; Mex. Bound. 38; Bot. Wilkes, 253. Durand, Fl. Utah, 160. Torr. & Gray, Pac. R. Rep. 2. 119 & 126. Durand & Hilg. same, 5. 6. Newberry, same, 6. 68. Cooper, same, 12. 51 & 57. Walp. Ann. 4. 309. Anderson, Cat. 118. Boland. Cat.

7. Porter, Hayd. Rep. 1870, 473; Fl. Col. 15. Watson, King's Rep. 5. 46; Pl. Wheel. 6. Coulter, Hayd. Rep. 1872, 762. Rothr. Pl. Wheel. 35.

Sida malvæflora. DC. Prodr. 1. 474; Moc. & Sessé, Fl. Mex. t. **70.** Lindl. Bot. Reg. 12, t. **1036.** Maund, Bot. Gard. 5, t. **237.** Hook. Fl. Bor.-Am. 1. 108; Lond. Jour. Bot. 6. 77. Don, Mill. 1. 496. Spach, Hist. Veg. 3. 400. Torr. & Gray, Fl. 1. 234. Hook. & Arn. Bot. Beechey, 136. Eat. & Wr. 425. Benth. Bot. Sulph. 8. Dietr. 4. 849.

Nuttallia malvæflora. Fisch. & Trautv. Ind. Sem. Petr. 3. 41 (Linn. Litt.-Ber. 1838, 101). Paxton, Mag. Bot. 7. 31 & t.

Sida Oregana. Nutt.; Torr. & Gray, Fl. 1. 234. Eat. & Wr. 425. Walp. Rep. 1. 316. Dietr. 4. 849.

Sidalcea Oregana. Gray, Pl. Fendl. 20.

Sidalcea Neo-Mexicana. Gray, Pl. Fendl. 20 & 23. Walp. Ann. 2. 151.

Callirrhoe spicata. Regel, Gart. Fl. 1872, 291, t. **737**; Trud. Petr. 2. 309.

SPHÆRALCEA angustifolia. Spach, Hist. Veg. 3. 353. Benth. Pl. Hartw. 7. Gray, Pl. Fendl. 22; Pl. Wright. 1. 21. Torr. & Gray, Pac. R. Rep. 2. 126 & 161. Torrey, same, 4. 72 & 7. 8; Mex. Bound. 39. Watson, King's Rep. 5. 417. Porter, Fl. Col. 16.

Malca angustifolia. Cav. Diss. 1. 64, t. **20, f. 3**; Icon. 1, t. **68.** Ait. Hort. Kew. 2. 447. Willd. Spec. 3. 777. DC. Prodr. 1. 435. Spreng. Syst. 3. 87. Hook. Bot. Mag. t. **2839.** Maund, Bot. Gard. 11, t. **517.**

Sphæroma angustifolium. Schlecht. in Linn. 11. 353.

Sida stellata. Torrey, Ann. Lyc. N. Y. 2. 171. Don, Mill. 1. 490. Dietr. 4. 841.

Sphæralcea stellata. Torr. & Gray, Fl. 1. 228. Eat. & Wr. 440. Walp. Rep. 1. 296. Torrey, Emory's Rep. 138 & 407.

Malva stellata. Dietr. 4. 816.

Var. lobata.

S. incana, var. *oblongifolia.* Gray, Pl. Wright. 2. 21; Ives's Rep. 8. Torrey, Sitgr. Rep. 156; Pac. R. Rep. 4. 72. Watson, King's Rep. 5. 48 & 417.

S. Emoryi. Torrey; Gray, Pl. Fendl. 23; Pl. Wright. 1. 21; Ives' Rep. 8. Walp. Ann. 4. 301. Watson, King's Rep. 5. 48; Pl. Wheel. 6. Brandegee, Fl. S. W. Col. 234. Brew. & Wats. Bot. Calif. 1. 86.

S. incana. Torrey; Gray, Pl. Fendl. 23; Pl. Wright. 1. 21; Proc. Am. Acad. 5. 154. Torrey, Pac. R. Rep. 5. 359 & 7. 8; Mex. Bound. 39. Watson, King's Rep. 5. 48 & 417. Rothr. Pl. Wheel. 35.

S. Wrightii. Gray, Pl. Wright. 2. 21. Walp. Ann. 4. 301.

S. Fendleri. Gray, Pl. Wright. 1. 21 & 2. 21. Torr. & Gray, Pac. R. Rep. 2. 161. Torrey, same, 7. 8; Mex. Bound. 39. Walp. Ann. 4. 302.

S. miniata. Gray, Genera, 2. 70, t. **127,** not Spach; Pl. Fendl. 19, excl. syn.

S. incana, var. *Fendleri.* Watson, Pl. Wheel. 7.

Var. dissecta.

Malvastrum pedatifidum. Gray, Pl. Lindh. 160; Pl. Wright. 1. 17 & 2. 20. Walp. Ann. 2. 152. Torrey, Mex. Bound. 38.

S. incana, var. *dissecta.* Gray, Pl. Wright. 1. 21 & 2. 21. Torrey, Pac. R. Rep. 7. 8; Mex. Bound. 39. Watson, King's Rep. 5. 47.

Sidalcea Atacosa. Buckl. in Proc. Acad. Philad. 1864, 449; fide Gray in same, 1862, 161.

S. hastulata. Gray, Pl. Wright. 1. 17 & 2. 21. Torr. & Gray, Pac. R. Rep. 2. 161. Walp. Ann. 4. 301. Torrey, Mex. Bound. 39.

S. longisepala. Torrey, Bot. Wilkes, 255.

S. Lindheimeri. Gray, Pl. Lindh. 162. Walp. Ann. 2. 140. Watson, Ki Rep. 5. 47.

Malvastrum Fremontii. Torrey; Gray, Pl. Fendl. 21. Walp. Ann. 2. 152.

S. rivularis. Torrey; Gray, Pl. Fendl. 23. Torrey, Bot. Wilkes, 255.

Malva rivularis. Dougl.; Hook. Fl. Bor.-Am. 1. 107; Lond. Jour. Bot. 6. Torr. & Gray, Fl. 1. 226. Eat. & Wr. 313. Walp. Rep. 1. 294. Dietr. 4. 817.

S. acerifolia. Nutt.; Torr. & Gray, Fl. 1. 228. Eat. & Wr. 440. Walp. F 1. 296. Hook. Bot. Mag. t. **5404.** Porter, Hayd. Rep. 1870, 474; 1871, 479. W son, King's Rep. 5. 48; Pl. Wheel. 7. Coulter, Hayd. Rep. 1872, 762. Gray, Jour. Sci. 3. 7. 239.

WISSADULA mucronulata. Gray; Torrey, Mex. Bound. 39.

Abutilon mucronulatum. Gray, Proc. Am. Acad. 5. 175.

STERCULIACEÆ.

AYENIA microphylla. Gray, Pl. Wright. 1. 24 & 2. 24. Walp. Ann. 4. Torrey, Mex. Bound. 40.

A. pusilla. Linn. Spec. 2 ed. 1354. Sloan, Hist. Jam. t. **132, f. 2.** Cav. I 2. 289, t. **147.** DC. Prodr. 1. 488. Gray, Pl. Wright. 1. 24 & 2. 24. Griseb Brit. W. Ind. 92. Torrey, Mex. Bound. 40. Chapman, 59.

FREMONTIA Californica. Torrey, Pl. Frem. 5, t. **2** (Regensb. Flora, 36. 7 Proc. Am. Assoc. 4. 191; Pac. R. Rep. 4. 15 & 71. Newberry, same, 6. 68. W Ann. 4. 319. Gray, Proc. Bost. Soc. Nat. Hist. 7. 146. Benth. & Hook. Gen 1. 212 & 982. Hook. f. Bot. Mag. t. **5591.** Lemaire, Ill. Hort. 13, t. **496.** rière, Rev. Hort. 1867, 91 & t. Masters, Gard. Chron. 1869 (Seem. Jour. 7. 297). Boland. Cat. 7. Garden, 1873, 54 & t.

Cheirostemon (?) *Californicus.* Benth. & Hook. Genera, 1. 212.

Cheiranthodendron Californicum. Baill. Hist. Pl. 4. 70.

HERMANNIA Texana. Gray, Pl. Lindh. 165; Genera, 2. 88, t. **135;** Wright. 1. 24 & 2. 24. Torrey, Mex. Bound. 40.

MELOCHIA pyramidata. Linn. Spec. 674. Cav. Diss. 2. 319, t. **172,** DC. Prodr. 1. 490. Torr. & Gray, Fl. 1. 683. Gray, Pl. Lindh. 165; Genera, 2 t. **134;** Pl. Wright. 1. 24 & 2. 24. Griseb. Fl. Brit. W. Ind. 93. Torrey, I Bound. 40. Young, Fl. Texas, 187.

Sida Sabeana. Buckl. in Proc. Acad. Philad. 1861, 449; fide Gray in s 1862, 161.

M. tomentosa. Linn. Spec. 2 ed. 932. Cav. Diss. 2. 319, t. **172, f. 2.** DC. P 1. 490. Benth. Bot. Sulph. 8. Griseb. Fl. Brit. W. Ind. 93. Torrey, Mex. Bo 40. Gray, Proc. Am. Acad. 5. 155.

M. frutescens. Jacq. Obs. 2, t. **44.**

WALTHERIA Americana. Linn. Spec. 673. See Griseb. Fl. Brit. W. 95; Gray, Bot. Wilkes' Expl. Exped. 1. 189; Masters, Hook. Fl. Brit. Ind. 1. under *W. Indica.* — DC. Prodr. 1. 492. Chapman, 59.

W. arborescens, elliptica, microphylla & ovata. Cav. Diss. 2. 316, t. **170, 171.** Prodr. 1. 493.

W. detonsa. Gray, Pl. Wright. 2. 24. Walp. Ann. 4. 323. Torr. Mex. Boun

TILIACEÆ.

CORCHORUS pilolobus. Link, Enum. 2. 72. DC. Prodr. 1. 504. Don, Mill. 1. 542. Gray, Pl. Wright. 1. 24. Torrey, Mex. Bound. 40. Young, Fl. Texas, 188.

C. lasiolobus. Spreng. Syst. 2. 583.

C. siliquosus. Torr. & Gray, Fl. 1. 239, not Linn. Eat. & Wr. 207. Gray, Genera, 2. 94, t. **137.**

C. siliquosus. Linn. Spec. 529. Hill, Veg. Syst. 14, t. **23, f. 1.** DC. Prodr. 1. 504. Hook. Jour. Bot. 1. 198. Gray, Pl. Wright. 1. 24. Griseb. Fl. Brit. W. Ind. 97. Chapman, 60. Wood, Cl.-Book, 272; Bot. & Fl. 64. Young, Fl. Texas, 188.

TILIA Americana. Linn. Spec. 514. Marsh. Arbust. 153. Ait. Hort. Kew. 2. 229. Willd. Spec. 2. 1261. Persoon, 2. 66. Michx. f. Arbr. Amer. 3. 311, t. **1.** Bigel. Fl. Bost. 214. James, Long's Exped. 1. 63. Torrey, Compend. 214; Fl. N. Y. 1. 116. Torr. & Gray, Fl. 1. 239. Loud. Arbor. 1. 373, t. **22.** Emerson, Mass. Trees, 511. Gray, Genera, 2. 92, t. **136**; Struct. Bot. 390, f. **742–747**; Manual, 103; Hall's Pl. Tex. 5. Engelm. Pl. Upp. Miss. 186. Curtis, Bot. N. Car. 79. Chapman, 59. Lesqx. Fl. Ark. 352. Pl. Bourgeau, 255.

T. glabra. Vent. Monog. Til. 9, t. **2** (Kön Ann. Bot. 1. 212). Nouv. Duham. 1. 228. Poir. Dict. 7. 681. Pursh, 362. Nutt. Genera, 2. 3. James, Long's Exped. 1. 317. DC. Prodr. 1. 513. Elliott, 2. 2. Guimp. Otto & Hayne, t. **44.** Hook. Fl. Bor.-Am. 1. 108. Don, Mill. 1. 553. Beck, Bot. 59. Darling. Fl. Cestr. 312. Eat. & Wr. 452. Dietr. 3. 237. Richards. Arct. Exped. 422.

T. Canadensis. Michx. Fl. 2. 306. Persoon, 2. 66. Poir. Dict. 7. 683.

T. nigra, Borck., & *neglecta.* Spach, Ann. Sci. Nat. 2. 2. 340, t. **15**; Hist. Veg. 4. 27 & 29. Walp. Rep. 1. 359.

Var. **pubescens.** Loud. Arbor. 1. 374, t. **23, 24.** Gray, Manual, 103; Hall's Pl. Tex. 5.

T. Caroliniana, Mill. Marsh. Arbust. 154.

T. Americana. Walter, 153.

T. pubescens. Ait. Hort. Kew. 2. 229. Willd. Spec. 2. 1162. Vent. Monog. Til. 10, t. **3** (Kön. Ann. Bot. 1. 213). Nouv. Duham. 1. 228, t. **51.** Persoon, 2. 66. Michx. f. Arbr. Amer. 3. 317, t. **3.** Pursh, 363. DC. Prodr. 1. 513. Elliott, 2. 3. Torrey, Compend. 215. Don, Mill. 1. 553. Beck, Bot. 59. Eat. & Wr. 452. Dietr. 3. 237. Curtis, Bot. N. Car. 79. Chapman, 59.

T. laxiflora. Michx. Fl. 2. 306. Poir. Dict. 7. 683. Persoon, 2. 66. DC. Prodr. 1. 513. Torrey, Compend. 215. Don, Mill. 1. 553. Beck, Bot. 59. Spach, Ann. Sci. Nat. 2. 2. 343, t. **15**; Hist. Veg. 4. 32. Dietr. 3. 237.

T. Mississippiensis. Bosc, Hort. Par.

T. truncata. Spach, ll. cc. 342 & 30. Dietr. 3. 237.

T. Americana, var. *Walteri.* Wood, Cl.-Book, 272.

T. heterophylla. Vent. Monog. Til. 16, t. **5** (Kön. Ann. Bot. 1. 216). Nouv. Duham. 1. 229. Poir. Dict. 7. 683. Pursh, 363. DC. Prodr. 1. 513. Don, Mill. 1. 553. Spach, Ann. Sci. Nat. 2. 2. 345; Hist. Veg. 4. 34. Torr. & Gray, Fl. 1. 239. Eat. & Wr. 452. Walp. Rep. 1. 359. Nutt. Sylva, 1. 90, t. **23.** Dietr. 3. 237. Curtis, Bot. N. Car. 79. Chapman, 60. Gray, Manual, 103.

T. alba. Michx. f. Arbr. Amer. 3. 315, t. **2.** Eat. & Wr. 452.

T. laxiflora. Pursh, 363, not Michx. Elliott, 2. 2.

T. Americana, var. *heterophylla.* Loud. Arbor. 1. 375, t. **23.**

TRIUMFETTA SEMITRILOBA, Linn. Chapman, Coult. Bot. Gaz. 3. 3.

LINACEÆ.

LINUM adenophyllum. Gray, Proc. Am. Acad. 8. 624.

L. aristatum. Engelm. in Wisliz. Rep. 17; Gray, Pl. Wright. 1. 25 & 26. Gra Pl. Wright. 2. 25; Ives's Rep. 8. Walp. Ann. 3. 830.

L. Berlandieri. Hook. Bot. Mag. t. **3480**, as *L. Berendieri.* Dietr. 2. 1025. E gelm. & Gray, Pl. Lindh. 5. Gray, Pl. Lindh. 156; Pl. Fendl. 25; Genera, 2. 1 t. **143, f. 11–14**; Pl. Wright. 1. 25; Hall's Pl. Tex. 5. Planch. Rev. Lin. in Lo Jour. Bot. 7. 47 (Walp. Ann. 2. 120). Scheele in Linn. 21. 596; Röm. Texas, 4 Torrey, Marcy's Rep. 281; Mex. Bound. 40. Engelm. in Gray, Pl. Wright. 1. Durand, Fl. Utah, 160. Pl. Bourgeau, 255.

L. rigidum, var. (?) *Berlandieri.* Torr. & Gray, Fl. 1. 204. Walp. Rep. 1. 28

L. annuum. Nees, Pl. Wied, 5; Bot. Zeit. 2. 547.

L. Breweri. Gray, Proc. Calif. Acad. 1. 202; Proc. Am. Acad. 6. 521. Bola Cat. 7.

L. Californicum. Benth. Pl. Hartw. 299. Walp. Ann. 2. 121. Torrey, Pac Rep. 4. 72. Newberry, same, 6. 68. Gray, Proc. Am. Acad. 6. 521.

L. congestum. Gray, Proc. Am. Acad. 6. 521. Boland. Cat. 7.

L. digynum. Gray, Proc. Am. Acad. 7. 334.

L. Greggii. Engelm. in Gray, Pl. Wright. 1. 26. Walp. Ann. 4. 206. (Norther Mexico.)

L. Kingii. Watson, King's Rep. 5. 49. Porter, Hayd. Rep. 1870, 474. Coulte same, 1872, 763.

L. micranthum. Gray, Proc. Am. Acad. 7. 333.

L. multicaule. Hook.; Torr. & Gray, Fl. 1. 678; Pac. R. Rep. 2. 161. Walp Rep. 1. 289. Gray, Pl. Lindh. 155; Pl. Wright. 1. 27; Hall's Pl. Tex. 5. Planc in Lond. Jour. Bot. 7. 185 (Walp. Ann. 2. 119). Engelm. in Gray, Pl. Wright. 1. 2 Torrey, Mex. Bound. 40.

L. selaginoides. Torr. & Gray, Fl. 1. 205, not Lam. Eat. & Wr. 302.

L. hudsonioides. Planch. l. c. 7. 186 (Walp. Ann. 2. 120). Gray, Pl. Lindh. 15

L. perenne. Linn. Spec. 277. See syn. in Ledeb. Fl. Ross. 1. 426; Planch. Re Lin. in Lond. Jour. Bot. 7. 174 (Walp. Ann. 2. 116). — Nutt. Genera, 1. 206; Jou Acad. Philad. 7. 16. Richards. Frankl. Journ. 7. Hook. Fl. Bor.-Am. 1. 10 Torr. & Gray, Fl. 1. 204; Pac. R. Rep. 2. 161. Torrey, Nicol. Rep. 146; Fre Rep. 88; Sitgr. Rep. 156; Pac. R. Rep. 4. 72 & 7. 8; Mex. Bound. 40; Bot. Wilke 251. Engelm. in Wisliz. Rep. 5; Gray, Pl. Wright. 1. 25; Pl. Upp. Miss. 18 Gray, Genera, 2. 108, t. **143, f. 9, 10**; Pl. Fendl. 25; Pl. Wright. 1. 25 & 2. 25; Pa R. Rep. 12. 41; Ives's Rep. 8; Proc. Acad. Philad. 1863, 59; Hall's Pl. Tex. Seem. Jour. Bot. 51. Newberry, Pac. R. Rep. 6. 68. Hook. f. in Jour. Linn. So 1. 121; Arct. Pl. 288. Durand, Fl. Utah, 160. Wood, Cl.-Book, 276. Roth Alask. 444; Pl. Wheel. 35. Boland. Cat. 7. Anderson, Cat. 118. Porter, Hay Rep. 1870, 474; 1871, 479; Fl. Col. 16. Watson, King's Rep. 5. 49; Pl. Wheel. Coulter, Hayd. Rep. 1872, 762.

L. Lewisii. Pursh, 210. Poir. Suppl. 5. 720. Bradbury, Cat. 336. Röm. Schult. Syst. 6. 746. James, Cat. 178; Long's Exp. 2. 343. Barton, Fl. N. A 1. 30, t. **8**. Spreng. Syst. 1. 962. Torrey, Ann. Lyc. N. Y. 2. 171. Don, Mi 1. 453. Nees, Pl. Wied, 5. Darwin, Jour. Linn. Soc. 7. 82. Alefeld, Bot. Ze 25. 250.

L. Sibiricum, var. *Lewisii*. Lindl. Bot. Reg. 14, t. **1163.**

L. perenne, var. *Lewisii*. Eat. & Wr. 302. Planch. ll. cc. 175 (117).

L. decurrens. Kellogg, Proc. Calif. Acad. 3. 44, f. **11.**

L. Lyallanum. Alefeld, Bot. Zeit. 25. 251.

L. rigidum. Pursh, 210. Poir. Suppl. 5. 720. Bradbury, Cat. 336. Nutt. Genera, 1. 206. Röm. & Schult. Syst. 6. 754. James, Cat. 178; Long's Exped. 2. 256. DC. Prodr. 1. 424. Spreng. Syst. 1. 964. Torrey, Ann. Lyc. N. Y. 2. 171; Nicol. Rep. 146; Frem. Rep. 88; Emory's Rep. 407; Pac. R. Rep. 4. 72; Mex. Bound. 40. Hook. Fl. Bor.-Am. 1. 105; Jour. Bot. 1. 196; Lond. Jour. Bot. 6. 75. Don, Mill. 1. 451. Torr. & Gray, Fl. 1. 204, in part; Pac. R. Rep. 2. 161. Eat. & Wr. 302. Dietr. 2. 1024. Scheele in Linn. 21. 597. Planch. in Lond. Jour. Bot. 7. 474 (Walp. Ann. 2. 121). Engelm. in Gray, Pl. Wright. 1. 25; Pl. Upp. Miss. 186. Parry, Pl. Minn. 610. Gray, Pac. R. Rep. 12. 41. Wood, Cl.-Book, 276, including *L. sulcatum*. Pl. Bourgeau, 255. Young, Fl. Texas, 191. Porter, Fl. Col. 16.

Var. **puberulum.** Engelm. in Gray, Pl. Wright. 1. 25. Gray, Pl. Wright. 2. 25.

L. Berlandieri, var. Gray, Pl. Fendl. 25; referred to *L. rigidum* in Pl. Lindh. 157.

L. rupestre. Engelm.; Gray, Pl. Lindh. 232; Pl. Wright. 1. 25 & 2. 25; Hall's Pl. Tex. 5. Walp. Ann. 2. 121. Engelm. in Gray, Pl. Wright. 1. 26. Torrey, Mex. Bound. 40.

L. Boottii, var. *rupestre*. Gray, Pl. Lindh. 155.

L. spergulinum. Gray, Proc. Am. Acad. 7. 333. Boland. Cat. 7.

L. striatum. Walter, 118. Gmel. Syst. Veg. 1. 514. Persoon, 1. 336. Poir. Suppl. 3. 443. Röm. & Schult. Syst. 6. 757. DC. Prodr. 1. 425. Spreng. Syst. 1. 962. Don, Mill. 1. 452. Torr. & Gray, Fl. 1. 205. Dietr. 2. 1026. Planch. in Lond. Jour. Bot. 7. 522 (Walp. Ann. 2. 135), suppressing the species. Chapman, 63. Gray, Proc. Am. Acad. 7. 334; Manual, 105.

L. Virginianum. Reich. Hort. Bot. 2. 35, t. **198.**

L. rigidum. Torr. & Gray, Fl. 1. 204, in part.

L. Virginianum, var. *oppositifolium*. Engelm. in Gray, Pl. Wright. 1. 26.

? *L. Virginianum*, var. (?) *diffusum*. Wood, Cl.-Book, 2 ed. 195.

? *L. diffusum*. Wood, Cl.-Book, 276; Bot. & Fl. 66.

L. sulcatum. Riddel, Cat. Pl. Ohio, Suppl. 10. Gray, Manual, 105.

L. striatum. Nutt. Genera, 1. 206, not Walt.

L. rigidum. Torr. & Gray, Fl. 1. 204, in part. Gray, Pl. Fendl. 25. Wood, Cl.-Book, 276.

L. Boottii. Planch. in Lond. Jour. Bot. 7. 475 (Walp. Ann. 2. 121). Gray, Pl. Lindh. 155 & 157. Engelm. in Gray, Pl. Wright. 1. 26; Pl. Upp. Miss. 186. Torrey, Marcy's Rep. 281. Chapman, 63.

? *L. simplex*. Wood, Cl.-Book, 276; Bot. & Fl. 66.

L. USITATISSIMUM, Linn. Pursh, 210. Torrey, Fl. U. S. 330; Fl. N. Y. 1. 318. Beck, Bot. 56. Torr. & Gray, Fl. 1. 204.

L. Virginianum. Linn. Spec. 279. Hill, Veg. Syst. 14, t. **43, f. 1.** Walter, 117. Lam. Dict. 3. 523. Willd. Spec. 1. 1538; Enum. 339. Michx. Fl. 2. 36. Persoon, 1. 335. Pursh, 210. Röm. & Schult. Syst. 6. 749. Elliott, 1. 375. DC. Prodr. 1. 424. Torrey, Fl. U. S. 330; Fl. N. Y. 1. 118. Bigel. Fl. Bost. 123. Spreng. Syst. 1. 964. Hook. Fl. Bor.-Am. 1. 106; Jour. Bot. 1. 196. Don, Mill. 1. 451. Beck, Bot. 56. Darling. Fl. Cestr. 210. Torr. & Gray, Fl. 1. 204. Eat. & Wr. 302. Dietr. 2. 1024. Planch. in Lond. Jour. Bot. 7. 480 (Walp. Ann. 2. 123). Gray, Genera, 2. 108, t. **143, f. 1–8**; Manual, 104; Hall's Pl. Tex. 5. Engelm. in Gray, Pl. Wright. 1. 26, excl. var. Chapman, 62.

Var. (?) **Floridanum.** Planch. in Lond. Jour. Bot. 7. 480 (Walp. Ann. 2. 123).
Var. (?) **Texanum.** Planch. ll. cc. Gray, Hall's Pl. Tex. 5.

L. annuum; Berlandieri.
Berlandieri; rigidum.
Boottii; rupestre, sulcatum.
decurrens; perenne.
diffusum; striatum.
hudsonioides; multicaule.
Lewisii & Lyallanum; perenne.
rigidum; Berlandieri, striatum, sulcatum.

H. San-Sabeanum; Lechea Drummondii.
selaginoides; multicaule.
Sibiricum; perenne.
simplex; sulcatum.
striatum; sulcatum.
sulcatum; rigidum.
trisepalum; Helianthemum scoparium.
Virginianum; striatum.

MALPIGHIACEÆ.

ASPICARPA hyssopifolia. Gray, Pl. Lindh. 167; Pl. Wright. 1. 36 & 2. 30. Walp. Ann. 2. 206. Torrey, Mex. Bound. 48.

A. longipes. Gray, Pl. Wright. 1. 37 & 2. 30. Walp. Ann. 4. 370. Torrey, Mex. Bound. 48.

BYRSONIMA lucida. HBK. Nov. Gen. 5. 147. DC. Prodr. 1. 580. Juss. Monog. Malpig. 2. 40 (Walp. Rep. 5. 168). Richard, Fl. Cub. 115, t. **28, A.** Chapman, 82. Griseb. Fl. Brit. W. Ind. 115.
Malpighia lucida, Swartz. Hook. Bot. Mag. t. **2462.**

GALPHIMIA angustifolia. Benth. Bot. Sulph. 9, t. **5.** Walp. Rep. 5. 186. Gray, Proc. Am. Acad. 5. 155.
G. linifolia. Gray, Pl. Lindh. 166; Genera, 2, 196, t. **173;** Pl. Wright. 1. 36 & 2. 30. Walp. Ann. 2. 199. Torrey, Mex. Bound. 48.

HIRÆA septentrionalis. Juss. in Ann. Sci. Nat. 2. 13. 259; Mon. Malpig. 2. 309 (Walp. Rep. 5. 331). Engelm. Wisliz. Rep. 30. Gray, Pl. Wright. 1. 37.
Var. **Coulteri.** Gray, Pl. Thurb. 303. Torrey, Mex. Bound. 48.
? *H. macroptera.* DC. Prodr. 1. 586; Moc. & Sessé, Fl. Mex. t. **130.**

H. sericea. Engelm.; Gray, Pl. Wright. 1. 37. Walp. Ann. 4. 370. (Northern Mexico.)
H. —— ? Engelm. in Wisliz. Rep. 30.

JANUSIA Californica. Benth. Bot. Sulph. 8, t. **4.** Walp. Rep. 5. 351. (Lower California.)

J. gracilis. Gray, Pl. Wright. 1. 37 & 2. 30. Walp. Ann. 4. 369. Torrey, Pac. R. Rep. 7. 9, t. **1**; Mex. Bound. 48.

MALPIGHIA glabra. Linn. Spec. 425. Cav. Diss. 2. 406, t. **234, f. 1.** Sims, Bot. Mag. t. **813.** DC. Prodr. 1. 578. Don, Mill. 1. 635. Juss. Mon. Malpig. 2. 11 (Walp. Rep. 5. 153). Torrey, Mex. Bound. 48.

ZYGOPHYLLACEÆ.

FAGONIA Californica. Benth. Bot. Sulph. 10. Walp. Rep. 5. 385. Torrey, Pac. R. Rep. 5. 359, t. **1**; Mex. Bound. 42. Gray, Ives's Rep. 9. Watson, King's Rep 5. 418.

GUIACUM Coulteri. Gray, Pl. Thurb. 312. Walp. Ann. 4. 406. Torrey, Mex. Bound. 42. (Northern Mexico.)

G. sanctum. Linn. Spec. 382. DC. Prodr. 1. 707. Gray, Genera, 2. 123, t. **148.** Griseb. Fl. Brit. W. Ind. 134. Chapman, 64. Wood, Bot. & Fl. 67.

G. verticale. Richard, Fl. Cub. 321.

Var. **parvifolium.** Nutt. Sylva, 3. 16, t. **86.**

LARREA Mexicana. Moric. Pl. Nouv. Am. 71, t. **48.** Walp. Rep. 5. 386. Torrey, Emory's Rep. 137, t. **3**; Pac. R. Rep. 5. 359 & 7. 9; Mex. Bound. 42. Gray, Genera, 2. 120, t. **147**; Pl. Wright. 1. 28 & 2. 26; Pl. Thurb. 299; Ives's Rep. 9. Torr. & Gray, Pac. R. Rep. 2. 161. Bigelow, same, 4. 14. Durand & Hilg. in Jour. Acad. Philad. 2. 3. 38; Pac. R. Rep. 5. 6. Watson, King's Rep. 5. 417; Pl. Wheel. 7.

Zygophyllum tridentatum. DC. Prodr. 1. 706.

Larrea glutinosa. Engelm. Wisliz. Rep. 9. Torrey, same, 29. Walp. Ann. 3. 840.

PORLIERA angustifolia. Gray, Pl. Wright. 1. 28. Torrey, Mex. Bound. 42.

Guiacum angustifolium. Engelm. Wisliz. Rep. 20. Gray, Pl. Lindh. 158; Genera, 2. 123, t. **149.** Walp. Ann. 3. 840.

SERICODES Greggii. Gray, Pl. Wright. 1. 28. Walp. Ann. 4. 403. Baill. Hist. Pl. 4. 508. (Northern Mexico.)

TRIBULUS cistoides. Linn. Spec. 387. Jacq. Hort. Schoenb. t. **103.** DC. Prodr. 1. 703. Gray, Genera, 2. 116, t. **145.** Griseb. Fl. Brit. W. Ind. 134. Chapman, 64. Wood, Bot. & Fl. 67. Made a variety of *T. terrestris*, Linn., by Oliver, Fl. Trop. Afr. 1. 283.

T. grandiflorus. Benth. & Hook. Genera, 1. 264.

Kallstræmia grandiflora. Torrey; Gray, Pl. Wright. 1. 28; Proc. Am. Acad. 5. 155. Walp. Ann. 4. 404. Torrey, Mex. Bound. 42.

T. maximus. Linn. Spec. 386. Jacq. Icon. Rar. 3, t. **462.** Lam. Ill. t. **346, f. 2.** Elliott, 1. 476. DC. Prodr. 1. 704. Torrey, Ann. Lyc. N. Y. 2. 173. Benth. Pl. Hartw. 7. Griseb. Fl. Brit. W. Ind. 134. Wood, Bot. & Fl. 67.

T. terrestris. Muhl. Cat. 43.

T. trijugatus. Nutt. Genera, 1. 277. DC. Prodr. 1. 704. Dietr. 2. 1423.

Kallstræmia maxima. Torr. & Gray, Fl. 1. 213. Gray, Pl. Lindh. 158; Pl. Fendl. 28; Genera, 2. 118, t. **146**; Pl. Wright. 2. 26; Hall's Pl. Tex. 5. Torrey, Emory's Rep. 137; Sitgr. Rep. 157; Mex. Bound. 42. Scheele, Röm. Texas, 432. Seem. Bot. Herald, 275. Wood, Cl.-Book, 280. Porter, Fl. Col. 17.

T. decolor. Macfadyen, Fl. Jam.

GERANIACEÆ.

ERODIUM cicutarium. L'Her.; Ait. Hort. Kew. 2. 414. See syn. in Ledeb. Fl. Ross. 1. 476. — Hook. Fl. Bor.-Am. 1. 116; Lond. Jour. Bot. 6. 76. Hook. & Arn. Bot. Beechey, 136. Torr. & Gray, Fl. 1. 208. Eat. & Wr. 237. Torrey, Fl. N. Y. 1. 121; Stansb. Rep. 888; Pac. R. Rep. 4. 72 & 7. 8; Mex. Bound. 41; Bot. Wilkes, 252. Gray, Pl. Fendl. 25; Genera, 2. 130; Ives's Rep. 51; Proc. Bost. Soc. Nat. Hist. 7. 146; Manual, 108; Proc. Am. Acad. 8. 378. Benth. Pl. Hartw. 301. Durand, Pl. Pratten. 84; Fl. Utah, 160. Bigelow, Pac. R. Rep. 4. 16. Newberry, same, 6. 68. Cooper, same, 12. 51. Boland. Cat. 7. Anderson, Cat. 119. Porter, Hayd. Rep. 1871, 480. Watson, King's Rep. 5. 50; Pl. Wheel. 7.

E. macrophyllum. Hook. & Arn. Bot. Beechey, 327. Torr. & Gray, **Fl. 1. 679.** Benth. Pl. Hartw. 301. Walp. Rep. 1. 447. Gray, Genera, 2. 130. **Torrey, Pac.** R. Rep. 4. 72; Mex. Bound. 41.

E. MOSCHATUM, Willd. Torrey, Pac. R. Rep. 7. 8.

E. Texanum. Gray, Pl. Lindh. 157; Genera, 2. 130, **t. 151**; Pl. **Wright. 2. 25**; Hall's Pl. Tex. 5. Walp. Ann. 2. 234. Torr. & Gray, Pac. R. Rep. 2. 161. **Torrey**, Mex. Bound. 41.

E. macrophyllum. Gray, Ives's Rep. 8.

FLŒRKEA proserpinacoides. Willd. Act. Berol. 3. 448. Poir. Suppl. 2. 661. Röm & Schult. Syst. 7. 53. Lindl. Hook. Jour. Bot. 1. 1, **t. 113.** Torr. & Gray, **Fl.** 1. 210. Dietr. 2. 1052. Torrey, Fl. N. Y. 1. 127, **t. 17**; Bot. Wilkes, 253. **Gray**, Genera, 2. 140, **t. 154**; Manual, 108. Schnizl. Icon. **t. 259, f. 16–18, 24. Watson**, King's Rep. 5. 50.

F. lacustris. Persoon, 1. 393.

Nectris pinnata. Pursh, 239. Dietr. 2. 1200.

F. uliginosa. Muhl. Cat. 36. Nutt. Genera, 1. 228. Raf. in **Am. Jour. Sci.** 1. 373. Torrey, Fl. U. S. 1. 339. Beck, Bot. 19. Hook. Jour. Bot. 1. 201. **Darling.** Fl. Cestr. 213. Eat. & Wr. 246.

F. palustris. Nutt. Genera, 1. 230. Barton, Comp. Fl. Philad. 1. 171. **Spreng.** Syst. 2. 135.

Calomba pinnata. Röm. & Schult. Syst. 7. 1379.

GERANIUM cæspitosum. James, Long's Exped. 2. 3. **Torrey, Ann. Lyc.** N. Y. 2. 173; Sitgr. Rep. 156; Pac. R. Rep. 4. 72; Mex. Bound. 41. Torr. & **Gray**, Fl. 1. 207. Eat. & Wr. 253. Walp. Rep. 1. 450; Ann. 2. 236. Engelm. in **Gray**, Pl. Fendl. 27; Pl. Upp. Miss. 186. Gray, Pl. Fendl. 25; Pl. Wright. 2. 25. **Watson**, Pl. Wheel. 7.

G. Carolinianum. Linn. Spec. 682. Hill, Veg. Syst. 15, **t. 38, f. 2.** Retz. **Obs.** Bot. fasc. 1. 23. Lam. Dict. 2. 656. Cav. Diss. 2. 206, **t. 84, f. 1,** & **t. 124, f. 2.** Walter, 175. Ait. Hort. Kew. 2. 437. Willd. Spec. 3. 711; Enum. 716. **Michx.** Fl. 2. 38. Persoon, 2. 236. Pursh, 449. Richards. Frankl. Journ. 16. DC. **Prodr.** 1. 643. Elliott, 2. 157. Torrey, Compend. 254; Fl. N. Y. 1. 120; Nicol. Rep. 146; Marcy's Rep. 282; Pac. R. Rep. 4. 72; Mex. Bound. 41; Bot. Wilkes, 252. **Spreng.** Syst. 3. 74. Graham, Edinb. Phil. Jour. 1828, 376. Hook. Fl. Bor.-Am. 1. 116; Jour. Bot. 1. 201. Don, Mill. 1. 720. Beck, Bot. 65. Darling. Fl. Cestr. 392. Hook. & Arn. Bot. Beechey, 136. Torr. & Gray, Fl. 1. 207; Pac. R. Rep. 2. 161. Eat. & Wr. 252. Dietr. 4. 799. Benth. Pl. Hartw. 35. Parry, Pl. Minn. 610. Engelm. Pl. Upp. Miss. 186. Gray, Pl. Wright. 2. 25; Manual, 107; Proc. Am. Acad. 8. 378. Cooper, Pac. R. Rep. 12. 57. Chapman, 65. Pl. Bourgeau, 255. Boland. Cat. 7. Anderson, Cat. 119. Porter, Hayd. Rep. 1871, 480. **Watson**, King's Rep. 5. 50. Coulter, Hayd. Rep. 1872, 763.

G. atrum. Moench, Meth. 285.

G. lanuginosum. Jacq. Hort. Schoenb. 2. 8, **t. 140.**

Var. **longipes.** Watson, King's Rep. 5. 50.

G. Carolinianum. Gray, Am. Jour. Sci. 2. 33. 404.

G. COLUMBINUM, Linn. Beck, Bot. 68. Eat. & Wr. 253. **Gray, Manual, 107.**

G. DISSECTUM, Linn. Pursh, 449. Bigel. Fl. Bost. 257. **Torrey, Compend. 254.** Beck, Bot. 67. Eat. & Wr. 253. Gray, Manual, 107.

G. erianthum. DC. Prodr. 1. 641. Bong. Sitch. 129. Hook. & Arn. **Bot. Beechey**, 113. Torr. & Gray, Fl. 1. 206. Eat. & Wr. 253. Ledeb. Fl. Ross. 1. 464. **Dietr.**

4. 796. **Rothr.** Alask. 444. Miquel, Ann. Mus. Lugd.-Bat. 8. 13. Torrey, Bot. Wilkes, 251.

G. maculatum, β. Hook. Fl. Bor.-Am. 1. 115.

G. Fremonti. Torrey; Gray, Pl. Fendl. 26. Engelm. same, 27. Torrey, Frem. Rep. 88; Emory's Rep. 137 & 407; Marcy's Rep. t. 3. Walp. Ann. 2. 236. Porter, Hayd. Rep. 1870, 474; 1871, 480; Fl. Col. 17. Watson, King's Rep. 5. 49. Coulter, Hayd. Rep. 1872, 763. Rothr. Pl. Wheel. 36.

Var. Parryi. Engelm. in Am. Jour. Sci. 2. 33. 405. Gray, Proc. Acad. Philad. 1863, 59. **Walp.** Ann. 7. 484. Porter, Hayd. Rep. 1871, 480.

G. gracile. Engelm. in Gray, Pl. Fendl. 27. Walp. Ann. 2. 236. (Northern Mexico.)

G. incisum. Nutt.; Torr. & Gray, Fl. 1. 206. Newberry, Pac. R. Rep. 6. 68. Cooper, same, 12. 51. Gray, Proc. Am. Acad. 8. 378. Brew. & Wats. Bot. Calif. 1. 94.

G. albiflorum, var. (?) *incisum*. Torr. & Gray, Fl. 1. 206.

G. erianthum. Lindl. Bot. Reg. 27, Misc. 44; same, 28, t. 52, excl. syn.

G. Hookerianum, var. *incisum*. Walp. Rep. 1. 450.

G. viscosissimum. Fisch. & Mey. Ind. Sem. Petr. 11, Suppl. 18.

G. maculatum. Linn. Spec. 681. Hill, Veg. Syst. 15, t. 36, f. 3. Walter, 175. Lam. Dict. 2. 660. Cav. Diss. 1. 213, t. 86, f. 2. Ait. Hort. Kew. 2. 435. Moench, Meth. 284. Willd. Spec. 3. 705; Enum. 715. Michx. Fl. 2. 38. Persoon, 2. 235. Pursh, 448. Bigel. Fl. Bost. 256; Med. Bot. 1. 84, t. 8. Elliott, 2. 157. DC. Prodr. 1. 642. Reich. Icon. Bot. t. 288. Torrey, Compend. 254; Fl. N. Y. 1. 119; Nicol. Rep. 146. Spreng. Syst. 3. 73. Raf. Med. Bot. 1. 215, f. 42. Hook. Fl. Bor.-Am. 1. 115; Lond. Jour. Bot. 6. 76. Don, Mill. 1. 718. Beck, Bot. 67. Spach, Hist. Veg. 8. 295. Darling. Fl. Cestr. 392. Lindl. Fl. Med. 221. Torr. & Gray, Fl. 1. 206. Eat. & Wr. 252. Dietr. 4. 796. Engelm. in Gray, Pl. Fendl. 27; Pl. Upp. Miss. 186. Gray, Genera, 2. 128, t. 150; Pac. R. Rep. 12. 41; Struct. Bot. 403, f. 753-758; Manual, 107. Parry, Pl. Minn. 610. Chapman, 65. Lesqx. Fl. Ark. 352. Pl. Bourgeau, 255. Traill, Canad. Fl. 41, t. 4. Myers, Am. Naturalist, 4. 438.

G. pusillum, Linn. Muhl. Cat. 64. Torrey, Compend. 254; Fl. N. Y. 1. 120. Beck, Bot. 67. Torr. & Gray, Fl. 1. 207. Eat. & Wr. 252. Gray, Manual, 107.

G. Richardsoni. Fisch. & Mey. in Ind. Sem. Petr. 4. 37. Lindl. Bot. Reg. 28, under t. 52. Engelm. in Gray, Pl. Fendl. 26. Gray, Pl Fendl. 25; Am Jour. Sci. 2. 33. 404; Proc. Acad. Philad. 1863, 59. Torrey, Pac. R. Rep. 4. 72. Porter, Hayd. Rep. 1870, 474; 1871, 479; Fl. Col. 17. Watson, King's Rep. 5. 49; Pl. Wheel. 7. Rothr. Pl. Wheel. 36.

G. albiflorum. Hook. Fl. Bor.-Am. 1. 116, t. 40; Bot. Mag. t. 3124, not Ledeb. Graham, Edinb. Phil. Jour. 1831, June. Torr. & Gray, Fl. 1. 206, excl. var., & 678. Eat. & Wr. 253. Cooper, Pac. R. Rep. 12. 57. Pl. Bourgeau, 255.

G. Hookerianum. Walp. Rep. 1. 450. Pl. Bourgeau, 255.

G. pentagynum. Engelm. Wisliz. Rep. 6; Gray, Pl. Fendl. 27. Walp. Ann. 2. 236 & 837. Referred to *G. Fremontii* by Torrey in Wisliz. Rep. 31.

G. Robertianum. Linn. Spec. 681. See syn. in Ledeb. Fl. Ross. 1. 473. — Pursh, 449. Bigel. Fl. Bost. 257. DC. Prodr. 1. 644. Torrey, Compend. 254; Fl. N. Y. 1. 121. Spreng. Syst. 3. 75. Beck, Bot. 68. Torr. & Gray, Fl. 1. 207. Eat. & Wr. 253. Hook. f. Fl. Arct. 288. Gray, Manual, 107.

G. inodorum. Don, Mill. 1. 721. Dietr. 4. 799.

G. albiflorum; incisum, Richardsonii.
atrum; Carolinianum.
erianthum; incisum.
Hookerianum; incisum, Richardsonii.
inodorum; Robertianum.
G. lanuginosum; Carolinianum.
maculatum; erianthum.
pentagynum; Richardsonii.
viscosissimum; incisum.

IMPATIENS fulva. Nutt. Genera, 1. 146. Barton, Comp. Fl. Philad. 1. 119 — Torrey, Fl. U. S. 249; Fl. N. Y. 1. 125. DC. Prodr. 1. 687. Spreng. Syst. 1. 808 — Reich. Hort. Bot. 2. 1, **t. 101.** Hook. Fl. Bor.-Am. 1. 117; Jour. Bot. 1. 201 — Don, Mill. 1. 750. Beck, Bot. 69. Darling. Fl. Cestr. 141. Torr. & Gray, Fl. 1. 209 — Dietr. 1. 846. Eat. & Wr. 283. Spach, Hist. Veg. 13. 273. Gray, Genera, 2. 135 — **t. 152, 153**; Manual, 108. Engelm. Pl. Upp. Miss. 186. Cooper, Pac. R. Rep. 12. 57. Chapman, 65. Pl. Bourgeau, 255.

I. biflora. Walter, 219. Willd. Spec. 1. 1175. Persoon, 1. 257. **Pursh, 171.** Röm. & Schult. Syst. 5. 340. Elliott, 1. 304. Sweet, Brit. Fl. Gard. **t. 43.**

I. nolitangere, β. Michx. Fl. 2. 149. Bigel. Fl. Bost. 98.

I. maculata. Muhl. Cat. 26.

I. pallida. Nutt. Genera, 1. 146. Torrey, Fl. U. S. 248; Fl. N. Y. 1. 125. DC. Prodr. 1. 687. Spreng. Syst. 1. 808. Hook. Fl. Bor.-Am. 1. 117; Jour. Bot. 1. 201. Don, Mill. 1. 750. Beck, Bot. 68. Darling, Fl. Cestr. 141. Torr. & Gray, Fl. 1. 208. Dietr. 1 846. Eat. & Wr. 283. Gray, Pl. Fendl. 27; Manual, 108. Engelm. Pl. Upp. Miss. 186. Chapman, 65. Lesqx. Fl. Ark. 353. Pl. Bourgeau, 255.

I. nolitangere. Michx. Fl. 2. 149, excl. var. Pursh, 171. Bigel. Fl. Bost. 98. Röm. & Schult. Syst. 5. 349. Elliott, 1. 303.

I. aurea. Muhl. Cat. 26.

? *I.* —— ? Anderson, Cat. 119. Brew. & Wats. Bot. Calif. 1. 93.

LIMNANTHES alba. Hartw.; Benth. Pl. Hartw. 301. Lindl. in Journ. Hort. Soc. Lond. 4. 112. Walp. Ann. 2. 239. Durand, Pl. Pratten. 84. Torrey, Pac. R. Rep. 4. 73. Brew. & Wats. Bot. Calif. 1. 95.

L. Douglasii. R. Br. in Lond. & Edinb. Phil. Mag. 2. 70. Lindl. Bot. Reg. 20, **t. 1673.** Benth. in Hort. Trans. 2. 1. 409. Don in Sweet's Brit. Fl. Gard. 2d ser. **t. 378.** Hook. Bot. Mag. **t. 3554.** Hook. & Arn. Bot. Beechey, 328. Torr. & Gray, Fl. 1. 209. Eat. & Wr. 301. Dietr. 2. 1419. Chatin, Ann. Sci. Nat. 4. 6. 249. Newberry, Pac. R. Rep. 6. 69. Torrey, Mex. Bound. 42. Schnizl. Icon. **t. 259, f. 1–15 & 19–23.** Maout & Decne. 355, **figs.** Boland. Cat. 7. Wood, Bot. & Fl. 68.

L. rosea. Hartw.; Benth. Pl. Hartw. 302. Lindl. in Jour. Hort. Soc. Lond. 4. 78 & **fig.** Walp. Ann. 2. 239. Torrey, Pac. R. Rep. 4. 73. Van Houtte, Fl. Serres, 5. 431 & **fig.** Boland. Cat. 7.

Floerkea Douglasii. Baillon, Adansonia, 10. 362; Hist. Pl. 5. 20, **f. 50–54.**

OXALIS Acetosella. Linn. Spec. 433. See syn. in Jacq. Oxal. 20; **Ledeb.** Fl. Ross. 1. 482. — Michx. Fl. 2. 38. Pursh, 322. Nutt. Genera, 1. 292. **DC.** Prodr. 1. 700. Torrey, Fl. U. S. 461; Fl. N. Y. 1. 122. Bigel. Fl. Bost. 257. Spreng. Syst. 2. 424. Raf. Med. Bot. 2. 46, **f. 68.** Hook. Fl. Bor.-Am. 1. 118, in part. Beck, Bot. 69. Torr. & Gray, Fl. 1. 211. Eat. & Wr. 336. **Chapman, 68.** Hook. f. Arct. Pl. 288. Gray, Manual, 109.

O. Americana. Bigelow; DC. Prodr. 1. 700. Zucc. Oxal. 26 & **Nachtr. 35.** Don, Mill. 1. 766.

O. Berlandieri. Torrey, Mex. Bound. 41. Walp. Ann. 7. 495.

O. corniculata. Linn. Spec. 435. See syn. in Jacq. Oxal. 15 & 16 (under *O. corniculata & stricta*); Ledeb. Fl. Ross. 1. 483; Hook. Fl. N. Zeal. 1. 42; Benth. Fl. Austral. 1. 301; Edgew. & Hook. f. Fl. Brit. Ind. 1. 436. — Sav. in Lam. Dict. 4. 683. Michx. Fl. 2. 39. Pursh, 322. Poir. Suppl. 4. 251. Elliott, 1. 525. DC. Prodr. 1. 692. Torrey, Fl. U. S. 462. Zucc. Oxal. 34 & Nachtr. 54. Hook. Fl. Bor.-Am. 1. 117; Jour. Bot. 1. 201. Beck, Bot. 70. Hook. & Arn. Bot. Beechey, 136. Torr. & Gray, Fl. 1. 211. Eat. & Wr. 337. Oakes, Hovey's Mag. 13. 218. Scheele, Linn. 21. 596; Röm. Texas, 434. Engelm. Pl. Upp. Miss. 186. Newberry, Pac. R. Rep. 6. 68. Cooper, same, 12. 41. Pl. Bourgeau, 255. Gray, Manual, 109; Proc. Am. Acad. 8. 378. Boland. Cat. 7.

O. pusilla. Salisb. in Linn. Trans. 2. 242, **t. 23, f. 5.**

O. pilosa & pumila. Nutt. in Torr. & Gray, Fl. 1. 212.

Var. **stricta.** Sav. in Lam. Dict. 4. 683. Hook. Fl. New Zeal. 1. 42.

O. stricta. Linn. Spec. 435. Hill, Veg. Syst. 9. 8, **t. 2, f. 4.** Thunb. Oxal. 22. Walter, 143. Ait. Hort. Kew. 2. 115. Jacq. Oxal. 29, **t. 4.** Willd. Spec. 2. 800; Enum. 490. Michx. Fl. 2. 39. Persoon, 1. 518. Pursh, 322. Bigel. Fl. Bost. 258. Poir. Suppl. 4. 251. Elliott, 1. 526. DC. Prodr. 1. 692. Torrey, Fl. U. S. 462; Fl. N. Y. 1. 123; Nicol. Rep. 146; Frem. Rep. 88; Emory's Rep. 407; Marcy's Rep. 281; Pac. R. Rep. 4. 73 & 7. 9; Mex. Bound. 41; Wilkes, Bot. 252. Spreng. Syst. 2. 429. Zucc. Oxal. 34 & Nachtr. 64. Hook. Fl. Bor.-Am. 1. 118; Jour. Bot. 1. 201. Don, Mill. 1. 756. Beck, Bot. 70. Torr. & Gray, Fl. 1. 212. Eat. & Wr. 337. Benth. Pl. Hartw. 10. Gray, Pl. Fendl. 27; Genera, 2. 112, **t. 144, f. 7–11**; Manual, 109. Parry, Pl. Minn. 610. Engelm. Pl. Upp. Miss. 186. Chapman, 63. Lesqx. Fl. Ark. 352. Boland. Cat. 7. Anderson, Cat. 119. Porter, Hayd. Rep. 1870, 480; Fl. Col. 17.

O. Dillenii. Jacq. Oxal. 15 & 28. Willd. Spec. 2. 799. Persoon, 1. 518. Pursh, 323. Poir. Suppl. 4. 251. DC. Prodr. 1. 691. Zucc. Oxal. 35. Spreng. Syst. 2. 430. Don, Mill. 1. 756.

O. florida. Salisb. Prodr. 322.

O. ambigua. Salisb. in Linn. Trans. 2. 242, **t. 23, f. 4.**

O. Lyoni. Pursh, 322. Poir. Suppl. 5. 754. Elliott, 1. 527. DC. Prodr. 1. 692. Zucc. Oxal. 35. Spreng. Syst. 2. 429. Don, Mill. 1. 757. Dietr. 2. 1602.

O. furcata & recurva. Elliott, 1. 527.

O. decaphylla. HBK. Nov. Gen. 5. 238, **t. 468.** DC. Prodr. 1. 695. Zucc. Oxal. 28 & Nachtr. 41. Gray, Pl. Wright. 2. 25. Torrey, Mex. Bound. 41.

O. dichondræfolia. Gray, Pl. Wright. 1. 27 & 2. 25. Walp. Ann. 4. 401. Torrey, Mex. Bound. 41.

O. Drummondii. Gray, Pl. Wright. 2. 25. Torrey, Mex. Bound. 41.

O. vespertilionis. Torr. & Gray, Fl. 1. 679, not Zucc. Dietr. 2. 1615. Gray, Pl. Lindh. 158; Pl. Wright. 1. 27. Young, Fl. Texas, 191.

O. Oregana. Nutt.; Torr. & Gray, Fl. 1. 211. Hook. & Arn. Bot. Beechey, 328. Eat. & Wr. 337. Dietr. 2. 1612. Walp. Rep. 1. 483. Torrey, Pac. R. Rep. 4. 72; Wilkes, Bot. 252. Newberry, Pac. R. Rep. 6. 68. Cooper, same, 12. 57. Boland. Cat. 7. Gray, Proc. Am. Acad. 8. 378.

O. Acetosella. Hook. Fl. Bor.-Am. 1. 118, in part.

O. trilliifolia. Hook. Fl. Bor.-Am. 1. 118. Torr. & Gray, Fl. 1. 211. Eat. & Wr. 337. Dietr. 2. 1615. A doubtful species.

O. violacea. Linn. Spec. 434. Hill, Syst. Veg. 9, **t. 3, f. 1.** Jacq. Hort. Vind. 2, **t. 180**; Oxal. 16 & 35, **t. 80, f. 2.** Walter, 143. Ait. Hort. Kew. 2. 113. Sav. in Lam. Dict. 4. 686. Willd. Spec. 2. 786; Enum. 488. Michx. Fl. 2. 39. Persoon,

1. 516. Pursh, 322. Poir. Suppl. 4. 245. Nutt. Genera, 1. 292. Elliott, 1. 525. Sims, Bot. Mag. t. **2215**. DC. Prodr. 1. 695. Torrey, Fl. U. S. 462; Fl. N. Y. 1. 123; Nicol. Rep. 146; Emory's Rep. 407; Marcy's Rep. 281; Mex. Bound. 41. Turpin, Dict. Sci. Nat. 37. 135, t. **132**. Zucc. Oxal. 19 & Nachtr. 27. Bigel. Fl. Bost. 258. Spreng. Syst. 2. 426. Don, Mill. 1. 760. Beck, Bot. 69. Spach, Hist. Veg. 3. 248. Torr. & Gray, Fl. 1. 211. Eat. & Wr. 337. Dietr. 2. 1606. Nees, Pl. Wied, 5. Gray, Genera, 2. 112, t. **144, f. 1–6**; Pl. Wright. 2. 25; Pac. R. Rep. 12. 41; Manual, 109. Parry, Pl. Minn. 610. Engelm. Pl. Upp. Miss. 186. Chapman, 63. Porter, Fl. Col. 17. Baill. Hist. Pl. 5. 24, f. **64**.

O. longiflora. Linn. Spec. 433. Hill, Veg. Syst. 9, t. **3, f. 2**. Thunb. Oxal. 13. Sav. in Lam. Dict. 4. 679. Willd. Spec. 791. Persoon, 1. 517. Poir. Suppl. 4. 247.

O. vespertilionis. Gray, Pl. Fendl. 27.

O. Wrightii. Gray, Pl. Wright. 1. 27 & 2. 25. Torr. & Gray, Pac. R. Rep. 2. 161. Walp. Ann. 4. 401. Torrey, Mex. Bound. 41.

RUTACEÆ.

ASTROPHYLLUM dumosum. Torrey, Pac. R. Rep. 2. 161; Mex. Bound. 42. Baill. Hist. Pl. 4. 394 & 472.

CITRUS VULGARIS, Riss. Nutt. Sylva, 2. 106, t. **76**. Chapman, 62. Wood, Bot. & Fl. 71.

C. —— ? Torr. & Gray, Fl. 1. 222.

C. Aurantium. Cooper, Smithson. Rep. 1860, 440.

PEGANUM Mexicanum. Gray, Pl. Wright. 1. 30 & 2. 106. Walp. Ann. 4. 414. Torrey, Mex. Bound. 42.

PTELEA angustifolia. Benth. Pl. Hartw. 9. Walp. Rep. 1. 523. Gray, Pl. Fendl. 28. Torrey, Mex. Bound. 44. Watson, King's Rep. 5. 50. Porter, Fl. Col. 18.

P. trifoliata. Boland. Cat. 7.

P. Baldwinii. Young, Fl. Texas, 196.

P. Baldwinii. Torr. & Gray, Fl. 1. 215. Eat. & Wr. 379. Walp. Rep. 1. 523. Chapman, 67. Wood, Bot. & Fl. 71.

P. trifoliata. Linn. Spec. 118. Medicus, Bot. Beob. 1782, 215. Marsh. Arbust. 115. Walter, 88. Ait. Hort. Kew. 1. 162. Lam. Ill. 1. 336, t. **84**. Moench, Meth. 55. Schmidt, Arb. 2, t. **76**. Willd. Spec. 1. 670; Enum. 166. Michx. Fl. 1. 99. Nouv. Duham. 1. 252, t. **57**. Poir. Dict. 5. 706. Persoon, 1. 145. Pursh, 107. Nutt. Genera, 1. 104. Elliott, 1. 201. Röm. & Schult. Syst. 3. 291. Torrey, Fl. U. S. 189; Fl. N. Y. 1. 133; Pac. R. Rep. 4. 73; Mex. Bound. 43. DC. Prodr. 2. 82. Spreng. Syst. 1. 441. Turpin, Dict. Sci. Nat. 44. 2, t. **128**. A. Juss. in Mem. Mus. 12, t. **26, f. 42**. Guimp Otto & Hayne, t. **74**. Beck, Am. Jour. Sci. 10. 264; Bot. 71. Don, Mill. 1. 806. Spach. Hist. Veg. 2. 369. Hook. Jour. Bot. 1. 202. Lindl. Fl. Med. 215. Torr. & Gray, Fl. 1. 215. Dietr. 1. 497. Eat. & Wr. 379. Loud. Arbor. 1. 489, t. **59**. Scheele, Röm. Texas, 432. Gray, Genera, 2. 150, t. **157**; Manual, 110. Richards. Arct. Exped. 423. Parry, Pl. Minn. 610. Engelm. Pl. Upp. Miss. 187. Agardh, Theor. Syst. t. **19, f. 7, 8**. Curtis, Bot. N. Car. 107. Lesqx. Fl. Ark. 353. Chapman, 66. Schnizl. Icon. t. **250, f. 15–26**. Baill. Hist. Pl. 4. 395, f. **445, 446**.

Var. **mollis.** Torr. & Gray, Fl. 1. 680. Engelm & Gray, Pl. Lindh. 83. Torrey, Marcy's Rep. 282. Gray, Pl. Wright. 1. 31; Hall's Pl. Tex. 5. Wood, Bot. & Fl. 71.

P. (?) *tomentosa.* Raf. Fl. Lud. 108.

P. mollis. M. A. Curtis, Am. Jour. Sci. 2. 7. 406 (Bot. Zeit. 8. 529); Bot. N. Car. 107. Walp. Ann. 2. 259. Chapman, 67. Young, Fl. Texas, 196.

RUTA GRAVEOLENS, Linn. Gray, Manual, 679.

THAMNOSMA montanum. Torrey, Frem. Rep. 313 (Bot. Zeit. 5. 41); Pac. R. Rep. 4. 73, **t. 3**; Mex. Bound. 42. Walp. Ann. 1. 160. Gray, Pl. Thurb. 304; Ives's Rep. 9. Watson, King's Rep. 5. 418.

T. Texanum. Torrey, Mex. Bound. 42. Gray, Hall's Pl. Tex. 5.

Rutosma Texanum. Gray, Pl. Lindh. 158; Genera, 2. 144, **t. 155**; Pl. Wright. 1. 29 & 2. 26; Pl. Thurb. 298 & 304. Torr. & Gray, Pac. R. Rep. 2. 161.

XANTHOXYLUM Americanum. Mill. Dict.; DuRoi, Obs. Bot. 57. Wangenh. Beschreib. 116. Torr. & Gray, Fl. 1. 214. Torrey, Fl. N. Y. 1. 132; Nicol. Rep. 147. Emerson, Mass. Trees, 509. Gray, Genera, 2. 148, **t. 156**; Pac. R. Rep. 12. 41; Struct. Bot. 405, **f. 759–766**; Manual, 110. Richards. Arct. Exped. 423. Parry, Pl. Minn. 610. Engelm. Pl. Upp. Miss. 187.

X. Clava-Herculis. Lam. Dict. 2. 38; Ill. **t. 811, f. 3.** Ait. Hort. Kew. 3. 399. Moench, Meth. 340. James, Long's Exped. 1. 317.

X. fraxinifolium. Marsh. Arbust. 167.

X. fraxineum. Willd. Berl. Baum. 413; Spec. 4. 757; Enum. 1013. Persoon, 2. 615. Ait. f. Hort. Kew. 5. 382. Pursh, 210. Nutt. Genera, 2. 236. Nouv. Duham. 7. 3, **t. 2.** James, Long's Exped. 2. 101. Bigel. Med. Bot. 3. 156, **t. 59**; Fl. Bost. 376. DC. Prodr. 1. 726. Spreng. Syst. 1. 945. Torrey, Compend. 373. Hook. Fl. Bor.-Am. 1. 118. Raf. Med. Bot. 2. 113, **f. 96.** Don, Mill. 1. 802. Beck, Bot. 70. Spach, Hist. Veg. 2. 364. Lindl. Fl. Med. 216. Dietr. 2. 1000. Eat. & Wr. 482. Nees, Pl. Wied, 5. Loud. Arbor. 1. 488, **f. 158 & t. 58.** Agardh, Theor. Syst. **t. 19, f. 9.** Schnizl. Icon. **t. 250, f. 1–14.** Maout & Decne, 365, **figs.** Baill. Hist. Pl. 4. 389, **f. 433–438.**

X. mite. Willd. Enum. 1013. Poir. Suppl. 5. 622. DC. Prodr. 1. 727. Don, Mill. 1. 802. Loud. Arbor. 1. 489.

X. ramiflorum. Michx. Fl. 2. 235.

X. tricarpum. Hook. Fl. Bor.-Am. 1. 118, not Michx.

Thylax fraxineum. Raf. Med. Bot. 2. 114.

X. Caribæum. Lam. Dict. 2. 40. See syn. Trian. & Planch. in Ann. Sci. Nat. **5. 14.** 315.

? *X. Floridanum.* Nutt. Sylva, 3. 14, **t. 85.** Chapman, 66. Wood, Bot. & Fl. **70.** Young, Fl. Texas, 194.

X. Clava-Herculis. Linn. Spec. 270, excl. hab. Jam., not Lam. nor DC. Willd. Spec. 4. 754, in part. Elliott, 2. 690. Trian. & Planch. in Ann. Sci. Nat. 5. 14. 317, with syn.

X. fraxinifolium. Walter, 243.

Fagara fraxinifolia. Lam. Ill. **t. 334.**

X. Carolinianum. Lam. Dict. 2. 39; Ill. **t. 811, f. 1.** Torr. & Gray, Fl. 1. 214. Engelm. & Gray, Pl. Lindh. 5. Gray, Genera, 2. 148, **t. 156, f. 13, 14** (fl.); Manual, 110; Hall's Pl. Tex. 5. Scheele, Röm. Texas, 432. Nutt. Sylva, 3. 8, **t. 83.** Curtis, Bot. N. Car. 103. Chapman, 66.

X. aromaticum. Willd. Spec. 4. 755, excl. syn. Jacq. f. Ecl. 1. 103, **t. 70.**

Pseudopetalon glandulosum & tricarpum. Raf. Fl. Lud. 108; Med. Bot. 2. 114.

X. Catesbianum. Raf. Med. Fl. 2. 114.

X. tricarpum. Michx. Fl. 2. 235. Poir. Suppl. 2. 294. Ait. f. Hort. Kew. 5. 382. Pursh, 210. DC. Prodr. 1. 726. Elliott, 2. 690. A. Juss. in Mem. Mus. 12, **t. 25, f. 38.** Spreng. Syst. 1. 945. Don, Mill. 1. 803. Spach, Hist. Veg. 2. 365. Eat. & Wr. 482. Dietr. 2. 1000. Loud. Arbor. 1. 488.

Var. **fruticosum.** Gray, Pl. Wright. 1. 30. Torr. & Gray, Pac. R. Rep. 2. 161. Torrey, Mex. Bound. 43. Chapman, 66.

X. macrophyllum. Nutt. Sylva, 3. 10.

X. alveolatum. Shuttlw. in Herb. (Pl. Rugel, n. 71.)

X. hirsutum. Buckley, Proc. Acad. Philad. 1861, 450 & 1870, 136; fide Gray in same, 1862, 162. Young, Fl. Texas, 195.

X. Pterota. HBK. Nov. Gen. 6. 3. DC. Prodr. 1. 725. Torr. & Gray, Fl. 1. 680. Nutt. Sylva, 3. 11, **t. 84.** Seem. Bot. Herald, 275. Torrey, Mex. Bound. 43. Chapman, 66. Young, Fl. Texas, 195. Trian. & Planch. in Ann. Sci. Nat. 5. 14. 311, with syn. Engler, Mart. Fl. Bras. fasc. 65. 154.

Fagara Pterota. Linn. Amœn. 5. 393, in part. Lam. Dict. 2. 444; Ill. 1. 335, **t. 84.** Turpin, Dict. Sci. Nat. 16. 107, **t. 127.**

F. lentiscifolia. Willd. Enum. 1. 166. Griseb. Fl. W. Ind. 137.

SIMARUBEÆ.

CASTELA erecta. Turpin, Ann. Mus. 7. 78, **t. 5, f. B.** DC. Prodr. 1. 738. Planch. in Lond. Jour. Bot. 5. 569. Griseb. Fl. Brit. W. Ind. 140.

C. Nicholsonii. Hook. Bot. Misc. 1. 271, **t. 55.** Torr. & Gray, Fl. 1. 680. Walp. Rep. 1. 525. Planch. l. c. 568. Gray, Genera, 2. 154, **t. 158;** Pl. Wright. 1. 32; Pl. Thurb. 312. Torrey, Mex. Bound. 44. Schnizl. Icon. **t. 246, f. 15–23.**

CNEORIDIUM dumosum. Hook. f. in Benth. & Hook. Genera, 1. 312. Baill. Hist. Pl. 4. 498. Brew. & Wats. Bot. Calif. 1. 97.

Pitavia dumosa. Nutt.; Torr. & Gray, Fl. 1. 215. Eat. & Wr. 360. Torrey, Mex. Bound. 43.

HOLACANTHA Emoryi. Gray, Pl. Thurb. 310 (Regensb. Flora, 38. 586). Torrey, Emory's Rep. **t. 14;** Mex. Bound. 45, **t. 8.** Walp. Ann. 4. 419. Baill. Hist. Pl. 4. 493.

KŒBERLINIA spinosa. Zucc. in Regensb. Flora, 1832, Beibl. 2. 74. Benth. Pl. Hartw. 35. Walp. Rep. 1. 258. Engelm. in Wisliz. Rep. 29; Emory's Rep. 158, **f. 13.** Gray, Pl. Wright. 1. 30 & 2. 26. Torrey, Mex. Bound. 42. Baill. Hist. Pl. 4. 503.

SIMARUBA glauca. HBK. Nov. Gen. 6. 16. DC. Ann. Mus. 17. 323; Prodr. 1. 733. Gray, Genera, 2. 152. Nutt. Sylva, 3. 20, **t. 87.** Griseb. Fl. Brit. W. Ind. 139, with syn. Chapman, 67. Wood, Bot. & Fl. 72. Engler, Mart. Fl. Bras. fasc. 65. 224 & syn.

BURSERACEÆ.

AMYRIS sylvatica. Jacq. Am. Pict. **t. 108.** DC. Prodr. 2. 81. Dietr. 2. 1271. Griseb. Fl. Brit. W. Ind. 174, with syn.

A. dyatripa. Spreng. Neue Entdeck. 3. 48. DC. Prodr. 2. 81.

A. Floridana. Nutt. in Am. Jour. Sci. 5. 294; Sylva, 2. 114, **t. 78.** DC. Prodr.

2. 81. Torr. & Gray, Fl. 1. 221. Eat. & Wr. 123. Loud. Arbor. 2. 561. Chapman, 68. Wood, Bot. & Fl. 72.

A. maritima. Richard, Fl. Cuba, 392, not Jacq.

BURSERA gummifera. Jacq. Am. Pict. t. **65.** Linn. Spec. 2 ed. 741. DC. Prodr. 2. 78. Descourt, Fl. 2, t. **97.** Nutt. Sylva, 2. 117, t. **79.** Griseb. Fl. W. Ind. 173. Chapman, 68. Cooper, Smithson. Rep. 1860, 440. Wood, Bot. & Fl. 72.

B. acuminata. Willd. Spec. 4. 1120. DC. Prodr. 2. 78.

? *B. simplicifolia.* DC. Prodr. 2. 78.

B. Hindsiana. Benth. & Hook. Genera, 1. 324. — (Lower California.)

Elaphrium Hindsianum. Benth. Bot. Sulph. 11, t. **8.**

B. microphylla. Gray, Proc. Am. Acad. 5. 155.

MELIACEÆ.

MELIA AZEDARACH, Linn. Elliott, 1. 475. James, Cat. 181. Audubon, Birds, t. **62.** Torr. & Gray, Fl. 1. 241. Eat. & Wr. 816. Curtis, Bot. N. Car. 65.

SWIETENIA Mahogoni. Linn. Spec. 2 ed. 271. Cav. Diss. 2. 365, t. **209.** DC. Prodr. 1. 625. Hook. Bot. Misc. 1. 21, t. **16, 17.** Torr. & Gray, Fl. 1. 242. Eat. & Wr. 447. Nutt. Sylva, 2. 98, t. **75.** Chapman, 62. Griseb. Fl. Brit. W. Ind. 131. Wood, Bot. & Fl. 66.

OLACINEÆ.

XIMENIA Americana. Linn. Spec. 1193. Bartram, Travels, 115. DC. Prodr. 1. 533. Nutt. Sylva, 1. 124, t. **36.** Schnizl. Icon. t. **223, f. 1–9.** Chapman, 61. Griseb. Fl. Brit. W. Ind. 310, with syn. Engler, Mart. Fl. Bras. fasc. 60. 10, t. **2, f. 1,** with syn.

ILICINEÆ.

ILEX ambigua. Chapman, 269. Curtis, Bot. N. Car. 59. Wood, Bot. & Fl. 208.

Cassine Caroliniana. Walter, 242.

Prinos ambiguus. Michx. Fl. 2. 236. Persoon, 1. 388. Poir. Suppl. 1. 406. Elliott, 2. 705. Torrey, Fl. U. S. 338. Bigel. Fl. Bost. 129. DC. Prodr. 2. 17. Watson, Dendr. 1, t. **29.** Spreng. Syst. 2. 133. Röm. & Schult. Syst. 7. 57. Don, Mill. 2. 20. Beck, Bot. 231. Hook. Jour. Bot. 1. 202. Spach, Hist. Veg. 2. 433. Eat. & Wr. 376. Dietr. 2. 1050. Loud. Arbor. 2. 521, f. **190.**

Synstima acuminata & ambigua. Raf. Sylv. Tellur. 48.

Nemopanthes ambiguus. Wood, Cl.-Book, 497.

I. Amelanchier. M. A. Curtis; Chapman, 270. Wood, Bot. & Fl. 208.

I. Cassine. Walter, 241. Ait. Hort. Kew. 1. 170, in part. James, Cat. 176; Long's Exped. 3. 154. Hook. Jour. Bot. 1. 202. Curtis, Bot. N. Car. 59. Chapman, 269. Lesqx. Fl. Ark. 373. Gray, Manual, 306.

I. Cassine, β. Linn. Spec. 125.

Cassine Peragua. Linn. Mant. 2. 220. Marsh. Arbust. 26. Plenck, Icon. t. **239.**

Cassine Caroliniana. Lam. Dict. 1. 652.

I. vomitoria. Ait. Hort. Kew. 1. 170. Willd. Spec. 1. 709. Nouv. Duham. 1. 10. Persoon, 1. 151. Pursh, 118. Nutt. Genera, 1. 109. Röm. & Schult. Syst. 3. 491 & Mant. 333. DC. Prodr. 2. 14. Spreng. Syst. 1. 495. Torrey, Ann. Lyc. N. Y. 2. 173. Don, Mill. 2. 17. Hook. Jour. Bot. 1. 202. Spach, Hist. Veg. 2. 430. Lindl. Fl. Med. 393. Dietr. 1. 555. Eat. & Wr. 282. Loud. Arbor. 2. 518, **f. 186.**

I. ligustrina. Jacq. Collect. 4. 105; Icon. Rar. 2. 9, **t. 310.** Lam. Ill. 1. 356.

I. Floridana. Lam. Ill. 1. 356.

I. Cassena. Michx. Fl. 2. 229. Poir. Suppl. 3. 65. Röm. & Schult. Syst. 3. 490. Elliott, 2. 681. Wood, Bot. & Fl. 208.

I. religiosa. Barton, Fl. Virg. 66.

Cassine ramulosa. Raf. Fl. Lud. 363.

Hierophyllus Cassine. Raf. Med. Bot. 2. 8.

Emetila ramulosa. Raf. Sylv. Tellur. 45.

Ageria Cassena & geminata. Raf. Sylv. Tellur. 47.

? *Oreophila myrtifolia.* Scheele, Röm. Texas, 432.

I. Dahoon. Walter, 241. Michx. Fl. 2. 228. Pursh, 117. Nutt. Genera, 1. 109. Röm. & Schult. Syst. 3. 489 & Mant. 332. DC. Prodr. 2. 14. Watson, Dendr. 2, **t. 114.** Spreng. Syst. 1. 495. Audubon, Birds, **t. 48.** Don, Mill. 2. 19. Hook. Jour. Bot. 1. 202. Spach, Hist. Veg. 2. 428. Dietr. 1. 554. Eat. & Wr. 282. Loud. Arbor. 2. 519. Curtis, Bot. N. Car. 58. Chapman, 269. Gray, Manual, 306.

I. Cassine. Linn. Spec. 125, in part & excl. var. Marsh. Arbust. 64. Ait. Hort. Kew. 1. 170, in part. Lam. Dict. 3. 147; Ill. 1. 355. Willd. Spec. 1. 709; Enum. 172; Hort. Berol. 1, **t. 31.** Nouv. Duham. 1. 9. Persoon, 1. 151. Poir. Suppl. 3. 65. Pursh, 117. Röm. & Schult. Syst. 3. 490. DC. Prodr. 2. 14. Spreng. Syst. 1. 495. Don, Mill. 2. 17. Spach, Hist. Veg. 2. 428. Dietr. 1. 554. Eat. & Wr. 282. Loud. Arbor. 2. 517, **f. 184.** Goepp. in Del. Sem. Vratisl. 1852 (Linn. 26. 746).

I. cassinoides. Link, Enum. 1. 148. Röm. & Schult. Syst. 3, Mant. 332.

I. laurifolia. Nutt. in Am. Jour. Sci. 5. 289. Eat. & Wr. 282.

Ageria palustris, obovata & heterophylla. Raf. Sylv. Tellur. 47.

Var. **angustifolia.** Torr. & Gray, Fl. ined.

I. Cassine, var. *angustifolia.* Willd. Spec. 1. 709. Nouv. Duham. 1. 9, **t. 3.**

I. angustifolia. Willd. Enum. 172. Pursh, 118. Nutt. Genera, 1. 109. Röm. & Schult. Syst. 3. 489. DC. Prodr. 2. 14. Watson, Dendr. 1, **t. 4.** Spreng. Syst. 1. 495. Don, Mill. 2. 17. Hook. Jour. Bot. 1. 202. Spach, Hist. Veg. 2. 428. Dietr. 1. 554. Loud. Arbor. 2. 517, **f. 185.** Goepp. in Del. Sem. Vratisl. 1852 (Linn. 26. 747). Some of these citations refer rather to the next form.

I. ligustrina. Elliott, 2. 708. Spach, Hist. Veg. 2. 429. Eat. & Wr. 282.

? *I. Watsoniana.* Spach, Hist. Veg. 2. 429.

Var. **myrtifolia.** Chapman, 269.

I. myrtifolia. Walter, 241. Nouv. Duham. 1. 10, **t. 4.** Michx. Fl. 2. 229. Poir. Suppl. 3. 65. Röm. & Schult. Syst. 3. 489. Link, Enum. 148. Spach, Hist. Veg. 2. 429. Eat. & Wr. 282. Gray, Manual, 306.

I. rosmarinifolia. Lam. Ill. 1. 356. Persoon, 1. 151. Poir. Suppl. 3. 65.

I. ligustrifolia. Don, Mill. 2. 19.

I. decidua. Walter, 241. Poir. Suppl. 3. 65. Curtis, Bot. N. Car. 59. Chapman, 269. Lesqx. Fl. Ark. 373. Gray, Manual, 306.

I. prinoides. Ait. Hort. Kew. 1. 169. Lam. Ill. 1. 355. Willd. Spec. 1. 708. Nouv. Duham. 1. 11. Michx. Fl. 2. 229. Persoon, 1. 151. Pursh, 118. Nutt. Genera, 1. 109. Röm. & Schult. Syst. 3. 488 & Mant. 332. Watson, Dendr. 2, **t. 115.** Spreng. Syst. 1. 495. Audubon, Birds, **t. 89.** Eat. & Wr. 282.

I. æstivalis. Lam. Dict. 3. 147; Ill. 1. 356.

Prinos deciduus. DC. Prodr. 2. 16. Don, Mill. 2. 20. Hook. Jour. Bot. 1. 202. Loud. Arbor. 2. 520.

I. ambiguus. Elliott, 2. 705.

I. glabra. Gray, Manual, 307. Curtis, Bot. N. Car. 60. Chapman, 270.

Prinos glaber. Linn. Spec. 330. Lam. Dict. 1. 208; Ill. t. **255**, f. **2**. Marsh. Arbust. 109. Walter, 247. Ait. Hort. Kew. 1. 478. Willd. Spec. 2. 226; Enum. 394. Michx. Fl. 2. 236. Nouv. Duham. 3. 215, t. **54**. Persoon, 1. 388. Pursh, 220. Bigel. Fl. Bost. 120. Lodd. Bot. Cab. t. **450**. Elliott, 2. 707. Torrey, Fl. U. S. 338; Fl. N. Y. 2. 4, t. **73**. DC. Prodr. 2. 17. Spreng. Syst. 2. 133. Röm. & Schult. Syst. 7. 60. Hook. Fl. Bor.-Am. 1. 121; Jour. Bot. 1. 202. Don, Mill. 2. 220. Beck, Bot. 231. Spach, Hist. Veg. 2. 435. Eat. & Wr. 376. Dietr. 2. 1050. Loud. Arbor. 2. 522, f. **2428**. Emerson, Mass. Trees, 346. Gray, Manual, 1 ed. 277. Wood, Bot. & Fl. 208.

Winterlia triflora. Moench, Meth. 74.

Ennepta myricoides. Raf. Sylv. Tellur. 52.

I. lævigata. Gray, Manual, 307.

Prinos lævigatus. Pursh, 220. Poir. Suppl. 4. 553. James, Long's Exped. 2. 101. Torrey, Fl. U. S. 338; Ann. Lyc. N. Y. 2. 174; Fl. N. Y. 2. 4. DC. Prodr. 2. 17. Spreng. Syst. 2. 133. Watson, Dendr. 1, t. **28**. Röm. & Schult. Syst. 7. 59 & 1617. Don, Mill. 2. 20. Beck, Bot. 231. Spach, Hist. Veg. 2. 434. Eat. & Wr. 376. Dietr. 2. 1050. Loud. Arbor. 2. 522, f. **192**. Emerson, Mass. Trees, 345. Wood, Bot. & Fl. 208.

I. lanceolata. Chapman, 270. A very doubtful species.

Prinos lanceolatus. Hill, Veg. Syst. 16. 57, t. **61**. Pursh, 220. Poir. Suppl. 4. 553. Elliott, 2. 707. DC. Prodr. 2. 17. Röm. & Schult. Syst. 7. 60. Don, Mill. 2. 20. Spach, Hist. Veg. 2. 434. Eat. & Wr. 376. Dietr. 2. 1050. Loud. Arbor. 2. 522. Wood, Bot. & Fl. 208.

Arinemia lanceolata. Raf. Sylv. Tellur. 49.

Prinos lævigatus, var. *lanceolatus.* Wood, Cl.-Book, 498.

I. lucida. Torr. & Gray, Fl. ined.

Prinos lucida. Ait. Hort. Kew. 2. 478. Willd. Spec. 2. 226. Persoon, 1. 388. DC. Prodr. 2. 17. Röm. & Schult. Syst. 7. 61.

Prinos coriaceus. Pursh, 221. Poir. Suppl. 4. 553. Nutt. in Am. Jour. Sci. 5. 293. Elliott, 2. 708. DC. Prodr. 2. 17. Spreng. Syst. 2. 133. Röm. & Schult. Syst. 7. 61. Don, Mill. 2. 21. Spach, Hist. Veg. 2. 435. Eat. & Wr. 376. Dietr. 2. 1050. Loud. Arbor. 2. 523, f. **2427**. Wood, Bot. & Fl. 498.

Prinos atomarius. Nutt. Genera, 1. 213. DC. Prodr. 2. 17. Spreng. Syst. 2. 133. Röm. & Schult. Syst. 7. 60. Don, Mill. 2. 20. Dietr. 2. 1050. Loud. Arbor. 2. 522.

Prinos glaber. Watson, Dendr. 1, t. **27**.

Ennepta coriacea & atomaria. Raf. Sylv. Tellur. 52.

I. coriacea. Chapman, 270. Curtis, Bot. N. Car. 60.

I. mollis. Gray, Manual, 306.

Prinos ambiguus. Pursh, 220, not Michx.

Prinos verticillatus, var. Röm. & Schult. Syst. 7. 59.

Prinos dubius. Don, Mill. 2. 20. Loud. Arbor. 2. 521.

I. monticola. Gray, Manual, 306.

I. ambigua. Torrey, Fl. N. Y. 2. 2, excl. syn.

I. Amelanchier, var. *monticola.* Wood, Bot. & Fl. 208.

I. opaca. Ait. Hort. Kew. 1. 169. Willd. Spec. 1. 708; Enum. 172; Berl. Baumz. 190. Nouv. Duham. 1. 8. Michx. Fl. 2. 228. Persoon, 1. 151. Poir. Suppl. 3. Michx. f. Arbr. Am. 2, 191, t. **11.** Pursh, 117. Bigel. Fl. Bost. 62. Röm. Schult. Syst. 3. 487. Link, Enum. 147. James, Cat. 176; Long's Exped. 3. 1 Torrey, Fl. U. S. 194; Ann. Lyc. N. Y. 2. 173; Fl. N. Y. 2. 2. DC. Prodr. 2. Spreng. Syst. 1. 495. Watson, Dendr. 1, t. **3.** Hook. Fl. Bor.-Am. 1. 121; Jour. Bot. 1. 201. Raf. Med. Bot. 2. 7, t. **53.** Don, Mill. 2. 17. Beck, Bot. 230. Spach Hist. Veg. 2. 427. Darling. Fl. Cestr. 114. Dietr. 1. 554. Eat. & Wr. 282. Loud. Arbor. 2. 516, t. **66, 67.** Emerson, Mass. Trees, 341. Curtis, Bot. N. Car. 58. Chapman, 269. Lesqx. Fl. Ark. 372. Gray, Manual, 306.

I. Canadensis. Marsh. Arbust. 64.

I. Aquifolium. Marsh. Arbust. 63. Walter, 241.

I. laxiflora. Lam. Dict. 3. 147; Ill. 1. 355. Pursh, 117. Röm. & Schult. Syst. 3. 494 & Mant. 334. DC. Prodr. 2. 14. Spreng. Syst. 1. 495. Don, Mill. 2. 17. Spach, Hist. Veg. 2. 427. Dietr. 1. 555. Eat. & Wr. 282. Loud. Arbor. 2. 517.

I. quercifolia. Meerb. Icon. Sel. 2, t. **5.**

Ageria opaca. Raf. Sylv. Tellur. 47.

I. verticillata. Gray, Manual, 307. Chapman, 270. Curtis, Bot. N. Car. 60. Lesqx. Fl. Ark. 373.

Prinos verticillatus. Linn. Spec. 330. Lam. Dict. 1. 207; Ill. t. **255, f. 1.** Marsh. Arbust. 110. Ait. Hort. Kew. 1. 478. Willd. Spec. 2. 225; Enum. 394; Berl. Baumz. 232. Nouv. Duham. 3. 216. Persoon, 1. 387. Desf. Hist. Arbr. 2. 366. Pursh, 220. Bigel. Fl. Bost. 129; Med. Bot. 3. 141, t. **56.** Barton, Fl. Med. t. **17.** Torrey, Fl. U. S. 337; Fl. N. Y. 2. 3. Elliott, 2. 706. DC. Prodr. 2. 17. Watson, Dendr. 1, t. **30.** Guimp. Otto & Hayne, t. **56.** Spreng. Syst. 2. 132. Röm. & Schult. Syst. 7. 58. Hook. Fl. Bor.-Am. 1. 121; Jour. Bot. 1. 202. Don, Mill. 2. 20. Beck, Bot. 230. Spach, Hist. Veg. 2. 433. Lindl. Fl. Med. 394. Eat. & Wr. 376. Dietr. 2. 1050. Loud. Arbor. 2. 521, f. **191.** Emerson, Mass. Trees, 344. Wood, Bot. & Fl. 208.

P. confertus. Moench, Meth. 481.

P. Gronovii. Michx. Fl. 2. 236.

Var. **tenuifolia.** Torrey, Fl. U. S. 338.

Var. **padifolia.** Torr. & Gray, Fl. ined.

P. padifolius. Willd. Enum. 394; Berl. Baumz. 207. Poir. Suppl. 5. 555. Röm. & Schult. Syst. 7. 59. Spach, Hist. Veg. 2. 433. Dietr. 2. 1050.

I. æstivalis; decidua.
ambigua & *Amelanchier;* monticola.
angustifolia; Dahoon.
Aquifolium; opaca.
Canadensis; opaca, Nemopanthes Canadensis.
Cassena; Cassine.
Cassine & *cassinoides;* Dahoon.
coriacea; lucida.
delicatula; Nemopanthes Canadensis.
Floridana; Cassine.
I. laurifolia; Dahoon.
laxiflora; opaca.
ligustrina; Cassine, Dahoon.
ligustrifolia; Dahoon.
Myrsinites; Pachystima **Myrsinites.**
myrtifolia; Dahoon.
prinoides; decidua.
quercifolia; opaca.
religiosa & *vomitoria;* Cassine.
rosmarinifolia & *Watsoniana;* **Dahoon.**

NEMOPANTHES Canadensis. DC. Mem. Soc. Gen. 1. 450; Pl. Rar. Gen. 8, t. **3**; Prodr. 2. 18. Don, Mill. 2. 13. Beck, Bot. 230. Spach, Hist. Veg. 2. 436.

Raf. Sylv. Tellur. 51. Eat. & Wr. 827. Torrey, Fl. N. Y. 2. 5. Hook. Fl. Bor.-Am. 1. 122; Jour. Bot. 1. 202. Loud. Arbor. 2. 503, f. **172.** Emerson, Mass. Trees, 343. Gray, Manual, 307.

Ilex Canadensis. Michx. Fl. 2. 229, t. **49.** Nouv. Duham. 1. 12. Ait. f. Hort. Kew. 1. 279. Poir. Suppl. 3. 66. Pursh, 118. Röm. & Schult. Syst. 3. 498 & Mant. 333. Torrey, Fl. U. S. 194. Bigel. Fl. Bost. 62. Spreng. Syst. 1. 495.

Ilex delicatula. Barton, Fl. Virg. 67.

Prinos ambiguus. Nutt. Genera, 1. 213.

Nemopanthus fascicularis. Raf. Jour. Phys. 1819, 96; Am. Jour. Sci. 1. 378; Sylv. Tellur. 51.

Nuttallia Canadensis. Rapp. Jard. Gen. 1821, 44.

Prinos integrifolius. Elliott, 2. 706. Spach, Hist. Veg. 2. 434. Eat. & Wr. 876.

Prinos longipes. Raf. Sylv. Tellur. 50.

PRINOS. See under *Ilex.*

ambiguus; Ilex mollis, Nemopanthes Canadensis.

atomarius; I. lucida.

confertus; I. verticillata.

coriaceus; I. lucida.

dubius; I. mollis.

P. glaber; I. lucida.

Gronovii; I. verticillata.

integrifolius & *longipes;* Nemopanthes Canadensis.

lævigatus; I. lanceolata.

padifolius; I. verticillata.

verticillatus; I. mollis.

CELASTRACEÆ.

CELASTRUS scandens. Linn. Spec. 196. Lam. Dict. 1. 660. Marsh. Arbust. 28. Ait. Hort. Kew. 1. 271. Gaertn. Fruct. t. **95.** Willd. Spec. 1. 1125; Enum. 255. Michx. Fl. 1. 155. Persoon, 1. 242. Schkuhr, Handb. 1, t. **47.** Pursh, 167. Bigel. Fl. Bost. 92. Nouv. Duham. 6, t. **33.** Nutt. Genera, 1. 156. Röm. & Schult. Syst. 5. 418. James, Long's Exped. 1. 314. DC. Prodr. 2. 6. Torrey, Fl. U. S. 262; Fl. N. Y. 1. 140; Nicol. Rep. 147; Pac. R. Rep. 4. 74. Spreng. Syst. 1. 775. Hook. Fl. Bor.-Am. 1. 120; Jour. Bot. 1. 201. Don, Mill. 2. 9. Beck, Bot. 72. Spach, Hist. Veg. 2. 410. Darling. Fl. Cestr. 148. Torr. & Gray, Fl. 1. 257 & 685. Dietr. 1. 814. Eat. & Wr. 186. Loud. Arbor. 2. 502, f. **171.** Emerson, Mass. Trees, 478. Gray, Pl. Fendl. 29; Genera, 2. 186, t. **170**; Manual, 116. Richard. Arct. Exped. 423. Parry, Pl. Minn. 610. Engelm. Pl. Upp. Miss. 187. Agardh, Theor. Syst. t. **22,** f. **5.** Curtis, Bot. N. Car. 119. Chapman, 77. Schnizl. Icon. t. **236,** f. **1, 12–14** & **27.**

C. bullatus. Linn. Spec. 196. Lam. Dict. 1. 660. Persoon, 1. 242. Ait. f. Hort. Kew. 2. 26. Pursh, 168. Don, Mill. 2. 7. Eat. & Wr. 186. Loud. Arbor. 2. 502.

Euonymoides scandens. Moench, Meth. 70.

EUONYMUS Americanus. Linn. Spec. 197. Lam. Dict. 2. 573. Walter, 102. Ait. Hort. Kew. 1. 274. Willd. Spec. 1. 1132; Enum. 256. Michx. Fl. 1. 155. Persoon, 1. 243. Nouv. Duham. 3. 26, t. **9.** Pursh, 168. Röm. & Schult. Syst. 5. 466. Elliott, 1. 292. DC. Prodr. 2. 4. Torrey, Fl. U. S. 261; Fl. N. Y. 1. 142, t. **20.** Spreng. Syst. 1. 788. Lodd. Cab. t. **1322.** Hook. Fl. Bor.-Am. 1. 119. Don, Mill. 2. 5. Beck, Bot. 72. Spach, Hist. Veg. 2. 408. Darling. Fl. Cestr. 150. Audubon, Birds, t. **395.** Torr. & Gray, Fl. 1. 258. Dietr. 1. 819. Eat. & Wr. 240. Walp. Rep. 1. 532. Loud. Arbor. 2. 499, f. **168, 169.** Richard. Arct.

Exped. 423. Engelm. Pl. Upp. Miss. 187. Baill. in Bull. Bot. Soc. France, 5. 31
Curtis, Bot. N. Car. 102. Chapman, 76. Gray, Manual, 116; Hall's Pl. Tex. 5.

E. sempervirens. Marsh. Arbust. 44.

E. alternifolius. Moench, Meth. 71.

Var. **sarmentosus.** Nutt. Genera, 1. 154. Torrey, Fl. U. S. 261. Torr. & Gra
Fl. 1. 258. Eat. & Wr. 240.

E. sarmentosus. Don, Mill. 2. 5. Loud. Arbor. 2. 500.

Var. **obovatus.** Torr. & Gray, Fl. 1. 258. Gray, Genera, 2. 188, t. 17
Manual, 116.

E. obovatus. Nutt. Genera, 1. 155. DC. Prodr. 2. 4. Torrey, Fl. U. S. 1. 2
Spreng. Syst. 1. 788. Don, Mill. 2. 5. Beck, Bot. 72. Dietr. 1. 820. Loud. _
bor. 2. 500.

Var. **angustifolius.** Wood, Bot. & Fl. 76.

E. angustifolius. Pursh, 168. Poir. Suppl. 5. 684. Röm. & Schult. Syst. 5. –
Elliott, 1. 292. DC. Prodr. 2. 4. Spreng. Syst. 1. 788. Don, Mill. 2. 5. Sp
Hist. Veg. 2. 409. Torr. & Gray, Fl. 1. 258. Dietr. 1. 819. Eat. & Wr.
Loud. Arbor. 2. 500. Baill. in Bull. Bot. Soc. France, 5. 315.

E. atropurpureus. Jacq. Hort. Vind. 2. 155, t. 120. Lam. Dict. 2. 573.
Hort. Kew. 1. 274. Willd. Spec. 1. 1132; Enum. 1. 256. Michx. Fl. 1. 155.
soon, 1. 243. Nouv. Duham. 3. 26. Pursh, 168. Turpin, Dict. Sci. Nat. 17.
t. 272. Röm. & Schult. Syst. 5. 466. Elliott, 1. 293. DC. Prodr. 2. 4. Tor
Fl. U. S. 261; Ann. Lyc. N. Y. 2. 173; Fl. N. Y. 1. 141; Nicol. Rep. 147. Spre
Syst. 1. 788. Don, Mill. 2. 5. Beck, Bot. 72. Hook. Jour. Bot. 1. 201. Spr
Hist. Veg. 2. 407. Darling. Fl. Cestr. 149. Torr. & Gray, Fl. 1. 257, excl.
Dietr. 1. 819. Eat. & Wr. 240. Loud. Arbor. 2. 499, f. 167. Gray, Genera, 2. 1
Manual, 116. Richard. Arct. Exped. 423. Parry, Pl. Minn. 610. Engelm.
Upp. Miss. 187. Baill. Bull. Soc. Bot. France, 5. 314. Curtis, Bot. N. Car.
Chapman, 76. Lesqx. Fl. Ark. 354.

E. Caroliniensis. Marsh. Arbust. 43.

E. latifolius. Marsh. Arbust. 44. Agardh, Theor. Syst. t. 22, f. 4.

E. occidentalis. Nutt.; Torrey, Pac. R. Rep. 4. 74. Newberry, same, 6.
Bolander, Proc. Calif. Acad. 3. 78; Cat. 8.

E. atropurpureus? Hook. Fl. Bor.-Am. 1. 119.

E. atropurpureus, var. (!) β. Torr. & Gray, Fl. 1. 258. Walp. Rep. 1. 532.

GLOSSOPETALON spinescens. Gray, Pl. Wright. 2. 29, t. 12; Pl. Thu
209. Torrey, Pac. R. Rep. 4. 74; Mex. Bound. 47. Walp. Ann. 4. 426.

MAYTENUS phyllanthoides. Benth. Bot. Sulph. 54. Walp. Rep. 5. 4
Torrey, Mex. Bound. 47. Gray, Proc. Am. Acad. 5. 155. Chapman, 77.

MORTONIA Greggii. Gray, Pl. Wright. 1. 85. Torrey, Mex. Bound.
Walp. Ann. 4. 425.

M. effusa. Turcz. Bull. Mosc. 1858, 453.

M. scabrella. Gray, Pl. Wright. 2. 28. Walp. Ann. 4. 425. Torrey, M
Bound. 47.

M. sempervirens. Gray, Pl. Wright. 1. 34, t. 4, & 2. 28. Walp. Ann. 4. 4
Torrey, Mex. Bound. 47.

MYGINDA ilicifolia. Lam. Dict. 4. 396. Persoon, 1. 151. DC. Prodr. 2.
Spreng. Syst. 1. 496. Chapman, 75.

M. latifolia. Swartz, Fl. Ind. Occ. 1. 342. DC. Prodr. 2. 13. Griseb. Fl. B
W. Ind. 146. Chapman, 76.

M. Rhacoma. Swartz, Fl. Ind. Occ. 1. 340. DC. Prodr. 2. 18. Griseb. l. c. 146, with syn. Chapman, 75.

PACHYSTIMA Canbyi. Gray, Proc. Am. Acad. 8. 623.

P. Myrsinites. Raf. in Am. Month. Mag. 1818; Sylv. Tellur. 42. Gray, Pl. Fendl. 29; Pl. Wright. 2. 29; Am. Jour. Sci. 2. 33. 408; Proc. Acad. Philad. 1863, 59; Proc. Am. Acad. 8. 378 & 624. Torrey, Pac. R. Rep. 4. 74; Mex. Bound. 47, Bot. Wilkes, 260. Porter, Hayd. Rep. 1870, 474; Fl. Col. 18. Watson, King's Rep. 5. 50; Pl. Wheel. 7. Coulter, Hayd. Rep. 1872, 763.

Ilex (?) *Myrsinites.* Pursh, 119. Poir. Suppl. 5. 702. Röm. & Schult. Syst. 3. 494.

Myginda myrtifolia. Nutt. Genera, 1. 109. James, Cat. 176. DC. Prodr. 2. 13. Spreng. Syst. 1. 496. Hook. Fl. Bor.-Am. 1. 120, **t. 41.** Don, Mill. 2. 15. Dietr. 1. 554. Eat. & Wr. 323. Loud. Arbor. 2. 505.

Oreophila myrtifolia. Nutt.; Torr. & Gray, Fl. 1. 259. Torrey, Frem. Rep. 88. Hook. in Lond. Jour. Bot. 6. 78. Cooper, Pac. R. Rep. 12. 30 & 57.

SCHÆFFERIA cuneifolia. Gray, Pl. Wright. 1. 35 & 2. 29. Torrey, Mex. Bound. 47.

S. frutescens. Jacq. Stirp. Am. 259. Sloan, Hist. Jam. 2, **t. 209, f. 1.** Lam. Ill. 3. 402, **t. 809.** Poir. Dict. 6. 727. DC. Prodr. 2. 41. Griseb. Fl. W. Ind. 146. Chapman, 76.

S. completa. Swartz, Fl. Ind. Occ. 1. 327, **t. 7, f. A.**

S. buxifolia. Nutt. Sylva, 2. 42, **t. 56.**

RHAMNACEÆ.

ADOLPHIA infesta. Meisn. Gen. Pl. 70. Gray, Pl. Wright. 1. 34 & 2. 28. Torrey, Mex. Bound. 45. Miers, Ann. & Mag. Nat. Hist. 3. 5. 381; Contrib. Bot. 1. 284.

Ceanothus infestus. HBK. Nov. Gen. 7. 61, **t. 614.** DC. Prodr. 2. 31.

Colletia (?) *multiflora & disperma.* DC. Prodr. 2. 29.

Colletia infesta. Brongn. Mem. Rham. 59; Ann. Sci. Nat. 1. 10. 366.

Colubrina infesta. Schlecht. in Linn. 15. 468.

BERCHEMIA volubilis. DC. Prodr. 2. 22. Brongn. Mem. Rham. 50. Don, Mill. 2. 27. Audubon, Birds, **t. 160.** Hook. Jour. Bot. 1. 202. Spach, Hist. Veg. 2. 446. Lindl. Fl. Med. 166. Torr. & Gray, Fl. 1. 260 & 685. Loud. Arbor. 2. 528, **f. 196.** Gray, Genera, 2. 174, **t. 165**; Manual, 114; Hall's Pl. Tex. 5. Curtis, Bot. N. Car. 117. Chapman, 73. Lesqx. Fl. Ark. 354.

Rhamnus scandens. Hill, Veg. Hist. 14. 64, **t. 17**; Hort. Kew. 453, **t. 20.**

Rhamnus volubilis. Linn. f. Suppl. 132. Jacq. Collect. 2. 336; Icon. Rar. 2. 13, **t. 336.** Walter, 101. L'Her. Sert. Angl. 5 (Röm. u. Ust. Mag. Bot. 6. 63). Ait. Hort. Kew. 1. 264. Poir. in Lam. Dict. 4. 468. Michx. Fl. 1. 153. Persoon, 1. 240.

Zizyphus volubilis. Willd. Arb. 415; Spec. 1. 1102. Ait. f. Hort. Kew. 2. 18. Pursh, 188. Nutt. Genera, 1. 153. Elliott, 1. 290. Spreng. Syst. 1. 771. Dietr. 1. 810.

Oenoplia volubilis. Röm. & Schult. Syst. 5. 332. HBK. Nov. Gen. 7. 56.

Berchemia undulata & repanda. Raf. Sylv. Tellur. 33.

CEANOTHUS Americanus. Linn. Spec. 195. Medicus, Bot. Beob. 1782, 330. Lam. Dict. 1. 650; Ill. **t. 129, f. 1.** Marsh. Arbust. 27. Walter, 101. Ait. Hort.

Kew. 1. 270. Plenck, Icon. t. **143.** Gaertn. Fruct. t. **106.** Willd. Spec. 1. 1114; Enum. 254. Michx. Fl. 1. 154. Persoon, 1. 244. Schkuhr, Handb. 1. 152, t. **46.** Sims, Bot Mag. t. **1479.** Pursh, 167. Bigel. Fl. Bost. 91. Nouv. Duham. 6, t. **31.** Loisel. Herb. Amat. 2, t. **81.** Röm. & Schult. Syst. 5. 295. Elliott, 1. 290. DC. Prodr. 2. 31. Torrey, Fl. U. S. 260; Fl. N. Y. 1. 141; Frem. Rep. 88; Emory's Rep. 407. Spreng. Syst. 1. 772. Hook. Fl. Bor.-Am. 1. 124; Jour. Bot. 1. 202. Don, Mill. 2. 37. Beck, Bot. 74. Spach, Hist. Veg. 2. 459. Darling. Fl. Cestr. 148. Lindl. Fl. Med. 166. Torr. & Gray, Fl. 1. 264; Pac. R. Rep 2. 126. Dietr. 1. 812. Eat. & Wr. 185. Loud. Arbor. 2. 539, f. **214.** Emerson, Mass. Trees, 475. Gray, Genera, 2. 182, t. **169**; Manual, 115; Hall's Pl. Tex. 5. Richard. Arct. Exped. 423. Parry, Pl. Minn. 610. Agardh, Theor. Syst. t. **15**, f. **5.** Curtis, Bot. N. Car. 104. Chapman, 74. Pl. Bourgeau, 255. Watson, Proc. Am. Acad. 10. 333.

C. trinervus. Moench, Meth. 651.

? *C. tardiflorus.* Hornem. Hort. Hafn. 230. Röm. & Schult. Syst. 5. 296. DC. Prodr. 2. 31. Dietr. 1. 812. Loud. Arbor. 2. 540.

C. perennis. Pursh, 167. Poir. Suppl. 5. 599. Röm. & Schult. Syst. 5. 297. Elliott, 1. 291. DC. Prodr. 2. 32. Spreng. Syst. 1. 772. Don, Mill. 2. 37. Spach, Hist. Veg. 2. 461. Dietr. 1. 812.

C. intermedius. Pursh, 167, and other authorities as under *C. perennis.* Torrey, Ann. Lyc. N. Y. 2. 174. Maund, Bot. Gard. 12, t. **572.** Loud. Arbor. 2. 540.

C. sanguineus. Nutt. Genera, 1. 153, not Pursh. Torr. & Gray, Fl. 1. 265, in part.

C. herbaceus. Raf. Med. Rep. 5. 360; Desv. Jour. Bot. 1. 227. Poir. Suppl. 5. 599. Torrey, Fl. U. S. 260. Beck, Bot. 74.

C. officinalis. Raf. Med. Bot. 2. 205.

C. cordulatus. Kellogg, Proc. Calif. Acad. 2. 124, f. **39.** Watson, Proc. Am. Acad. 10. 337.

C. divaricatus. Boland. Cat. 8.

C. divaricatus, var. *eglandulosus.* Watson, King's Rep. 5. 51.

C. crassifolius. Torrey, Pac. R. Rep. 4. 75 & 7. 5; Mex. Bound. 46, t. **11.** Walp. Ann. 7. 591. Watson, Proc. Am. Acad. 10. 338.

C. rigidus, var. *grandifolius.* Torrey, Pac. R. Rep. 4. 75.

Var. **glabratus.** Gray; Boland. Cat. 8.

C. cuneatus. Nutt.; Torr. & Gray, Fl. 1. 267. Hook. & Arn. Bot. Beechey, 329. Eat. & Wr 185. Benth. Pl. Hartw. 302. Lindl. in Jour. Hort. Soc. Lond. 6. 220, fig. Paxton, Fl. Gard. 2. 103. Durand, Pl. Pratten. 85. Torrey, Pac. R. Rep. 4. 75; Mex. Bound. 45; Bot. Wilkes, 263. Newberry, Pac. R. Rep. 6. 69. Belg. Hort. 8, t. **44.** Watson, Proc. Am. Acad. 10. 338.

Rhamnus (?) *cuneatus.* Dougl.; Hook. Fl. Bor.-Am. 1. 124. Hook. & Arn. Bot. Beechey, 136.

C. verrucosus. Nutt.; Torr. & Gray, Fl. 1. 267. Eat. & Wr. 186. Benth. Bot. Sulph. 10. Hook. Bot. Mag. t. **4660.** Lindl. in Jour. Hort. Soc. 6. 276, fig. Paxton, Fl. Gard. 3. 103 & 148. Lemaire, Jard. Fleur. 8, t. **316.** Walp. Ann. 4. 434.

C. macrocarpus. Nutt.; Torr. & Gray, Fl. 1. 267, not Willd. Eat. & Wr. 186. Kellogg, Proc. Calif. Acad. 1. 55.

C. megacarpus. Nutt. Sylva, 2. 46.

C. decumbens. Watson, Proc. Am. Acad. 10. 335.

C. sorediatus, var. Torrey, Pac. R. Rep. 4. 74.

C. dentatus. Torr. & Gray, Fl. 1. 268. Hook. & Arn. Bot. Beechey, 329. Eat. & Wr 186. Paxton, Fl. Gard. 1, t. **4**. Planchon, Fl. Serres, 6. 103, t. **567**. Moore, Mag. Bot. 2. 169, t. **16**. Lemaire, Jard. Fleur. 1, t. **25**. Belg. Hort. 8, t. **16**. Torrey, Mex. Bound. 46, t. **10**. Boland. Cat. 8. Watson, Proc. Am. Acad. 10. 335.

C. Lobbianus. Hook. Bot. Mag. t. **4810**. Fl. Serres, 10. 125, t. **1016**. Walp. Ann. 4. 434.

? *C. diversifolius.* Kellogg, Proc. Calif. Acad. 1. 58 & 65.

C. —— ? Boland. in Proc. Calif. Acad. 3. 79.

C. divaricatus. Nutt.; Torr. & Gray, Fl. 1. 266 & 686. Hook. & Arn. Bot. Beechey, 328. Eat. & Wr. 185. Torrey, Pac. R. Rep. 7. 9. Watson, King's Rep. 5. 51, excl. var.; Proc. Am. Acad. 10. 336.

Var. **eglandulosus.** Torrey, Pac. R. Rep. 4. 75; Mex. Bound. 45.

C. integerrimus. Torrey, Pac. R. Rep. 4. 75, in part.

Var. **grosse-serratus.** Torrey, Pac. R. Rep. 4. 75.

C. Fendleri. Gray, Pl. Fendl. 29; Am. Jour. Sci. 2. 33. 407; Proc. Acad. Philad. 1863, 59. Walp. Ann. 2. 267. Engelm. Pl. Upp. Miss. 187. Torrey, Sitgr. Rep. 157; Pac. R. Rep. 4. 75. Porter, Fl. Col. 18. Watson, Pl. Wheel. 7; Proc. Amer. Acad. 10. 337.

C. floribundus. Hook. Bot. Mag. t. **4806**. Fl. Serres, 10. 23, t. **977**. Belg. Hort. 5, t. **9**. Walp. Ann. 4. 434. Lemaire, Ill. Hort. 7, t. **238**. Watson, Proc. Amer. Acad. 10. 338.

C. Greggii. Gray, Pl. Wright. 2. 28; Pl. Thurb. 301. Walp. Ann. 4. 435. Torrey, Mex. Bound. 45. Watson, King's Rep. 5. 418; Proc. Am. Acad. 10. 338.

C. cuneatus. Gray, Ives's Rep. 9.

C. hirsutus. Nutt.; Torr. & Gray, Fl. 1. 266. Eat. & Wr. 185. Torrey, Bot. Wilkes, 264. Watson, Proc. Am. Acad. 10. 336.

C. oliganthus. Nutt.; Torr. & Gray, Fl. 1. 266. Eat. & Wr. 185.

Var. **glaber.** Watson, Proc. Am. Acad. 10. 336.

C. sorediatus, var. *glaber.* Watson, King's Rep. 5. 51.

C. incanus. Torr. & Gray, Fl. 1. 265. Hook. & Arn. Bot. Beechey, 328. Eat. & Wr. 185. Torrey, Bot. Wilkes, 264. Boland. Cat. 8. Watson, Proc. Am. Acad. 10. 336.

C. integerrimus. Hook. & Arn. Bot. Beechey, 329. Torr. & Gray, Fl. 1. 686. Benth. Pl. Hartw. 302. Durand, Pl. Pratten. 85. Torrey, Pac. R. Rep. 4. 75. Newberry, same, 6. 69. Boland. Cat. 8. Watson, Proc. Am. Acad. 10. 334.

C. Californicus. Kellogg, Proc. Calif. Acad. 2. 55.

C. Nevadensis. Kellogg, same, 2. 152, f. **45**.

C. microphyllus. Michx. Fl. 1. 154. Persoon, 1. 244. Poir. Suppl. 2. 142. Ait. f. Hort. Kew. 2. 22. Pursh, 167. Nutt. Genera, 1. 154. Röm. & Schult Syst. 5. 296. Elliott, 1. 291. DC. Prodr. 2. 32. Spreng. Syst. 1. 772. Don, Mill. 2. 37. Spach, Hist. Veg. 2. 461. Torr. & Gray, Fl. 1. 266. Dietr. 1. 812. Eat. & Wr. 185. Loud. Arbor. 2. 540. Chapman, 74. Wood, Cl.-Book, 291; Bot. & Fl. 77, excl. var. Watson, Proc. Am. Acad. 10. 335.

C. ovatus. Desf. Arb. 2. 381. Röm. & Schult. Syst. 5. 296. DC. Prodr. 2. 31. Don, Mill. 2. 37. Dietr. 1. 812. Loud. Arbor. 2. 540. Torr. & Gray, Pac. R. Rep. 2. 162. Gray, Proc. Acad. Philad. 1863, 59. Porter, Fl. Col. 18. Watson, Proc. Am. Acad. 10. 334.

C. ovalis. Bigel. Fl. Bost. 2 ed. 92. Gray, Ann. Lyc. N. Y. 3. 224; Pl. Lindh. 170; Pac. R. Rep. 12. 41; Manual, 115; Hall's Pl. Tex. 5. Beck, Bot. 74. Torr.

& Gray, Fl. 1. 265 & 686. Eat. & Wr. 185. Torrey, Fl. N. Y. 1. 145, t. 20; Nicol. Rep. 147; Emory's Rep. 138 & 407; Mex. Bound. 45. Scheele, Röm. Texas, 432. Parry, Pl. Minn. 610. Porter, Hayd. Rep. 1870, 474; Fl. Col. 18.

C. intermedius. Hook. Fl. Bor.-Am. 1. 124, not Pursh.

C. Fontanesianus & Burmannianus. Spach, Hist. Veg. 2. 460.

Var. **pubescens.** Torr. & Gray, Fl. 1. 265. Engelm. Pl. Upp. Miss. 187.

C. papillosus. Torr. & Gray, Fl. 1. 268. Hook. & Arn. Bot. Beechey, 329. Hook. Icon. t. 272; Bot. Mag. t. 4815. Eat. & Wr. 186. Lindl. Jour. Hort. Soc. 5. 142. Planch. Fl. Serres, 6. 103, t. 567. Paxton, Fl. Gard. 1. 74, f. 50. Moore, Mag. Bot. 2. 169, t. 16. Lemaire, Jard. Fleur. 1, t. 17. Durand, Pl. Pratten. 85. Walp. Ann. 4. 435. Boland. Cat. 8. Watson, Proc. Am. Acad. 10. 337.

C. prostratus. Benth. Pl. Hartw. 302. Walp. Ann. 2. 267. Durand, Pl. Pratten. 85. Torrey, Pac. R. Rep. 4. 75; Bot. Wilkes, 262. Newberry, Pac. R. Rep. 6. 69. Anderson, Cat. 119. Watson, King's Rep. 5. 51; Proc. Am. Acad. 10. 3[illegible]

? *C. cuneatus.* Kellogg, Proc. Calif. Acad. 1. 55.

C. rigidus. Nutt.; Torr. & Gray, Fl. 1. 268. Hook. & Arn. Bot. Beechey, [illegible] Eat. & Wr. 186. Benth. Pl. Hartw. 302. Lindl. Jour. Hort. Soc. 1. 197, fig. Ho[illegible] Bot. Mag. t. 4664. Paxton, Fl. Gard. 1. 74, f. 51. Lemaire, Jard. Fleur [illegible] t. 348. Belg. Hort. 3, t. 16. Walp. Ann. 4. 434. Torrey, Mex. Bound. 45, t[illegible] Boland. Proc. Calif. Acad. 3. 79; Cat. 8. Watson, Proc. Am. Acad. 10. 339.

C. sanguineus. Pursh, 167. Poir. Suppl. 5. 599. Röm. & Schult. Syst. 5. 2[illegible] DC. Prodr. 2. 32. Spreng. Syst. 1. 772. Hook. Fl. Bor.-Am. 1. 125. Don, M[illegible] 2. 37. Spach, Hist. Veg. 2. 461. Torr. & Gray, Fl. 1. 265, in part. Dietr. 1. 8[illegible] Eat. & Wr. 185. Loud. Arbor. 2. 540. Richard. Arct. Exped. 423. Engelm. Upp. Miss. 187. Watson, Proc. Am. Acad. 10. 334.

C. Oreganus. Nutt.; Torr. & Gray, Fl. 1. 265. Eat. & Wr. 185. Hook. Lond. Jour. Bot. 6. 79; Bot. Mag. t. 5177. Cooper, Pac. R. Rep. 12. 30 & Walp. Ann. 7. 591. Gray, Proc. Am. Acad. 8. 379. Torrey, Bot. Wilkes, 263.

C. serpyllifolius. Nutt. Genera, 1. 154. DC. Prodr. 2. 32. Spreng. Syst. 1. 7 Don, Mill. 2. 38. Torr. & Gray, Fl. 1. 266. Dietr. 1. 812. Eat. & Wr. 185. Ch[illegible] man, 74. Watson, Proc. Am. Acad. 10. 335.

C. microphyllus, var. *serpyllifolius.* Wood, Bot. & Fl. 77.

C. sorediatus. Hook. & Arn. Bot. Beechey, 328. Torr. & Gray, Fl. 1. 6[illegible] Durand, Pl. Pratten. 85. Torrey, Pac. R. Rep. 4. 74, in part; Mex. Bound. [illegible] Watson, King's Rep. 5. 51, excl. var.; Proc. Am. Acad. 10. 336.

C. nitidus. Torrey, Pac. R. Rep. 4 75.

? *C. azureus.* Kellogg, Proc. Calif. Acad. 1. 55, not Desf.

C. spinosus. Nutt.; Torr. & Gray, Fl. 1. 267. Eat. & Wr. 185. Torrey, P[illegible] R. Rep. 7. 9; Mex. Bound. 45. Watson, Proc. Am. Acad. 10 337.

C. thyrsiflorus. Esch. in Mem. Acad. Petr. 10. 285 (Linn. Litt.-Ber. 1828, 14[illegible] Presl, Repert. Bot. 1. 196). Hook. Fl. Bor.-Am. 1. 125. Don, Mill. 2. 37. Hook. & Arn. Bot. Beechey, 136 & 328. Torr. & Gray, Fl. 1. 266. Dietr. 1. 813. Eat. & Wr. 185. Loud. Arbor. 2. 540. Lindl. Bot. Reg. 30, t. 38. Benth. Bot. Sulph. 10; Pl. Hartw. 302. Ann. Gand. 1847, t. 107. Nutt. Sylva, 2. 44, t. 57. Torrey, Pac. R. Rep. 4. 74; Mex. Bound. 45; Bot. Wilkes, 263. Newberry, Pac. R. Rep. 6. 69. Cooper, same, 12. 57. Bolander, Proc. Calif. Acad. 3. 78; Cat. 8. Watson, Proc. Am. Acad. 10. 334.

C. elegans. Lemaire, Ill. Hort. 7, t. 268. Walp. Ann. 7. 591.

Var. (?) **macrothyrsus.** Torrey, Bot. Wilkes, 263. Watson, l. c.

C. Veitchianus. Hook. Bot. Mag. t. **5127.** Lemaire, Ill. Hort. 6, Misc. 76. Fl. Serres, 13, 171, t. **1383.** Jour. Hort. 3, t. **22.** Belg. Hort. 10. 99, t. **8, f. 1–3.** Walp. Ann. 7. 591. Watson, Proc. Am. Acad. 10. 338.

C. velutinus. Dougl.; Hook. Fl. Bor.-Am. 1. 125, t. **45**; Bot. Mag. t. **5165.** Torr. & Gray, Fl. 1. 265 & 686. Eat. & Wr. 185. Loud. Arbor. 2. 540, f. **215.** Torrey, Frem. Rep. 88; Bot. Wilkes, 264. Richard. Arct. Exped. 423. Engelm. Pl. Upp. Miss. 187. Newberry, Pac. R. Rep. 6. 69. Cooper, same, 12. 14 & 30. Gray, Am. Jour. Sci. 2. 33. 407; Proc. Am. Acad. 8. 379. Walp. Ann. 7. 592. Boland. Cat. 8. Anderson, Cat. 119. Watson, King's Rep. 5. 51; Proc. Am. Acad. 10. 334. Coulter, Hayd. Rep. 1872, 763.

Var. **lævigatus.** Torr. & Gray, Fl. 1. 265. Porter, Hayd. Rep. 1870, 474; 1871, 480; Fl. Col. 18. Watson, King's Rep. 5. 51.

C. lævigatus. Hook. Fl. Bor.-Am. 1. 125.

C. azureus; hirsutus.
Burmannianus; ovatus.
Californicus; integerrimus.
colubrinus; Colubrina ferruginosa.
cuneatus; Greggii, prostratus.
divaricatus; incanus.
diversifolius; hirsutus.
elegans; thyrsiflorus.
ferreus; Scutia ferrea.
Fontanesianus; ovatus.
herbaceus; Americanus.
infestus; Adolphia infesta.
integerrimus; divaricatus.
intermedius; Americanus, ovatus.
lævigatus; velutinus.
Lobbianus; dentatus.
C. macrocarpus & megacarpus; cuneatus.
microphyllus; serpyllifolius.
Nevadensis; integerrimus.
nitidus; hirsutus.
officinalis; Americanus.
oliganthus; hirsutus.
Oreganus; sanguineus.
ovalis; ovatus.
perennis; Americanus.
rigidus; crassifolius.
sanguineus; Americanus.
sorediatus; decumbens, hirsutus.
tardiflorus & trinervus; Americanus.
verrucosus; cuneatus.
—— ?; dentatus.

COLUBRINA ferruginosa. Brongn. Mem. Rham. 62, t. **4, f. 3.** Griseb. Fl. Brit. W. Ind. 100.

Rhamnus colubrinus. Linn. Spec. 2 ed. 195. Jacq. Hort. Vind. 3, t. **50.** Poir. in Lam. Dict. 4. 467. Röm. & Schult. Syst. 5. 284, with syn.

Ceanothus colubrinus. Lam. Ill. 2. 90. Persoon, 1. 244. DC. Prodr. 2. 31.

Rhamnus ferrugineus. Nutt. in Jour. Acad. Phil. 7. 90. Torr. & Gray, Fl. 1. 263. Eat. & Wr. 390.

Perfonon (?) *ferrugineum.* Raf. Sylv. Tellur. 29.

Marcorella colubrina. Raf. l. c. 31.

Colubrina Americana. Nutt. Sylva, 2. 47, t. **58.** Chapman, 74.

C. Texensis. Gray, Pl. Lindh. 169; Pl. Wright. 1. 33. Walp. Ann. 2. 268. Torrey, Mex. Bound. 47.

Rhamnus (?) *Texensis.* Torr. & Gray, Fl. 1. 263. Eat. & Wr. 390. Young, Fl. Texas, 204.

Rhamnus Drummondii. Young, Fl. Texas, 204.

CONDALIA obovata. Hook. Icon. t. **287.** Torr. & Gray, Fl. 1. 685. Gray, Pl. Lindh. 169; Genera, 2. 172, t. **164**; Pl. Wright. 1. 32 & 2. 27; Hall's Pl. Tex. 5. Torrey, Mex. Bound. 47.

C. spathulata. Gray, Pl. Wright 1. 32 & 2. 27. Walp. Ann. 4. 433. Torrey, Mex. Bound. 47.

GOUANIA Domingensis. Linn. Spec. 2 ed. 1663. DC. Prodr. 2. 89. Brongn. Mem. Rham. 73. Griseb. Fl. Brit. W. Ind. 101. Chapman, 74.

KARWINSKIA Humboldtiana. Zucc. Nov. Stirp. in Denkschr. Baier. Akad. 4. 351. Schlecht. in Linn. 15. 460. Gray, Pl. Wright. 1. 32 & 2. 28; Proc. Am. Acad. 5. 155. Seem. Bot. Herald. 275. Torrey, Mex. Bound. 47. Brew. & Wats. Bot. Calif. 1. 100.

? *Rhamnus umbellatus.* Cav. Icon. 6. 2, t. **504.** DC. Prodr. 2. 26.

Rhamnus Humboldtianus. Röm. & Schult. Syst. 5. 295. HBK. Nov. Gen. 7. 40, t. **618.** DC. Prodr. 2. 26.

? *Rhamnus biniflorus.* DC. Prodr. 2. 26, not Hook. & Arn.

K. glandulosa. Zucc. l. c., t. **16.** Schlecht. in Linn. 15. 460.

K. affinis & biniflora. Schlecht. l. c.

MICRORHAMNUS ericoides. Gray, Pl. Wright. 1. 33 & 2. 28. Torr. & Gray, Pac. R. Rep. 2. 162. Walp. Ann. 4. 433.

RHAMNUS alnifolia. L'Her. Sert. Angl. 5 (Rom. u. Ust. Mag. Bot. 6. 63). Ait. Hort. Kew. 1. 266. Poir. in Lam. Dict. 4. 470; Suppl. 5. 739. Willd. Spec. 1. 1100. Persoon, 1. 239. Nouv. Duham. 3. 39. Röm. & Schult. Syst. 5. 286. Torrey, Fl. U. S. 263; Fl. N. Y. 1. 143. DC. Prodr. 2. 25. Guimp. Otto & Hayne, t. **61.** Spreng. Syst. 1. 769. Hook. Fl. Bor.-Am. 1. 122, t. **42.** Don, Mill. 2. 32. Beck, Bot. 73. Spach, Hist. Veg. 2. 455. Torr. & Gray, Fl. 1. 262. Eat. & Wr. 390. Nees, Pl. Wied, 5. Loud. Arbor. 2. 536, f. **206.** Emerson, Mass. Trees, 474. Gray, Genera, 2. 180; Manual, 115. Richard. Arct. Exp. 423. Pl. Bourgeau, 255.

R. franguloides. Michx. Fl. 1. 153. Nouv. Duham. 3. 46. Pursh, 166. Röm. & Schult. Syst. 5. 286. Torrey, Fl. U. S. 263. Spreng. Syst. 1. 769. Don, Mill. 2. 32. Eat. & Wr. 389. Loud. Arbor. 2. 536, f. **207.**

R. alpinus. Richard. Frankl. Journ. 6, not Linn.

Girtanneria alnifolia & franguloides. Raf. Sylv. Tellur. 28.

R. Californica. Esch. in Mem. Acad. Petr. 10. 281 (Linn. Litt.-Ber. 1828, 149; Presl, Repert. Bot. 1. 197). Don, Mill. 2. 32. Torr. & Gray, Fl. 1. 263. Dietr. 1. 806. Eat. & Wr. 390. Gray, Pl. Wright. 2. 28.

R. oleifolius. Hook. Fl. Bor.-Am. 1. 123, t. **44.** Hook. & Arn. Bot. Beechey, 136 & 328. Torr. & Gray, Fl. 1. 260. Eat. & Wr. 390. Benth. Bot. Sulph. 10; Pl. Hartw. 302. Durand, Pl. Pratten. 85. Rev. Hort. 1874, 354, f. **47.**

Endotropis oleifolia. Raf. Fl. Tellur. 31.

R. laurifolius. Nutt.; Torr. & Gray, Fl. 1. 260. Eat. & Wr. 390.

Frangula Californica. Gray, Genera, 2. 178; Proc. Bost. Soc. Nat. Hist. 7. 146. Torrey, Sitgr. Rep. 157; Pac. R. Rep. 4. 74; Mex. Bound. 46; Bot. Wilkes, 261. Newberry, Pac. R. Rep. 6. 69. Boland. Proc. Calif. Acad. 3. 78; Cat. 8. Anderson, Cat. 119.

Var. **tomentella.** Brew. & Wats. Bot. Calif. 1. 101.

R. tomentellus. Benth. Pl. Hartw. 303. Seem. Bot. Herald, 275. Walp. Ann. 2. 267.

Frangula Californica, var. *tomentella.* Gray, Pl. Wright. 2. 28. Torrey, Pac. R. Rep. 4. 74 & 7. 9.

R. CATHARTICA, Linn. Torrey, Fl. U. S. 263; Fl. N. Y. 1. 143. Beck, Bot. 74. Torr. & Gray, Fl. 1. 261. Eat. & Wr. 390. Bigel. Fl. Bost. 3 ed. 95. Emerson, Mass. Trees, 473. Nutt. Sylva, 2. 52. Gray, Manual, 114.

R. **Caroliniana.** Walter, 101. Poir. in Lam. Dict. 4. 476. Michx. Fl. 1. 153. *Nouv.* Duham. 3. 47. Persoon, 1. 239. Pursh, 166. Röm. & Schult. Syst. 5. 285. Elliott, 1. 289. DC. Prodr. 2. 26. Spreng. Syst. 1. 768. Torrey, Ann. Lyc. N. Y. 2 174. Don, Mill. 2. 82. Hook. Jour. Bot. 1. 202. Torr. & Gray, Fl. 1. 262. Dietr. 1. 807. Eat. & Wr. 390. Loud. Arbor. 2. 537. Gray, Pl. Lindh. 33; Hall's Pl. Tex. 5. Nutt. Sylva, 2. 50, t. **59.** Lesqx. Fl. Ark. 354. Wood, Cl.-Book, 291; Bot. & Fl. 77.

? *Frangula fragilis.* Raf. Fl. Lud. 320; Sylv. Tellur. 27.

Sarcomphalus Carolinianus. Raf. Sylv. Tellur. 29.

Frangula Caroliniana. Gray, Genera, 2. 178, t. **167**; Manual, 115. Torrey, Mex. Bound. 46. Curtis, Bot. N. Car. 92. Chapman, 73.

R. crocea. Nutt.; Torr. & Gray, Fl. 1. 261. Eat. & Wr. 390. Lindl. in Jour. Hort. Soc. 6. 217, **fig.** Paxton, Fl. Gard. 2. 84. Torrey, Pac. R. Rep. 4. 74; Mex. Bound. 46; Bot. Wilkes, 262. Boland. Cat. 8. Watson, Pl. Wheel. 7.

R. ilicifolius. Kellogg, Proc. Calif. Acad. 2. 36.

R. lanceolata. Pursh, 166. Poir. Suppl. 5. 739. Röm. & Schult. Syst. 5. 292. DC. Prodr. 2. 27. Spreng. Syst. 1. 769. Don, Mill. 2. 33. Torr. & Gray, Fl. 1. 261. Dietr. 1. 808. Eat. & Wr. 390. Torrey, Nicol. Rep. 147. Engelm. & Gray, Pl. Lindh. 33. Gray, Genera, 2. 180, t. **168**; Manual, 114. Parry, Pl. Minn. 610. Engelm. Pl. Upp. Miss. 187. Chapman, 73.

Cardiolepis nigra & rubra. Raf. Neogen. 1825; Sylv. Tellur. 28.

Sageretia lanceolata. Don, Mill. 2. 29.

R. Shortii. Nutt. in Jour. Acad. Philad. 7. 91.

Sarcomphalus Shortianus. Raf. Sylv. Tellur. 29.

R. parvifolius. Torr. & Gray, Fl. 1. 262 & 685, not Bunge. Eat. & Wr. 390.

R. Purshiana. DC. Prodr. 2. 25. Hook. Fl. Bor.-Am. 1. 123, t. **43**; Lond. Jour. Bot. 6. 78. Don, Mill. 2. 32. Torr. & Gray, Fl. 1. 262. Dietr. 1. 807. Loud. Arbor. 2. 538, f. **211.** Nutt. Sylva, 2. 52. Richard. Arct. Exped. 423. Newberry, Pac. R. Rep. 6. 69. Boland. Cat. 8. Gray, Proc. Am. Acad. 8. 379.

R. alnifolius. Pursh, 166, not L'Her.

Cardiolepis obtusa. Raf. Sylv. Tellur. 28.

Frangula Purshiana. Cooper, Pac. R. Rep. 12. 20 & 57. Torrey, Bot. Wilkes, 262.

R. alnifolius; Purshiana.
alpinus; Californica.
biniflorus; Karwinskia Humboldtiana.
colubrinus; Colubrina ferruginea.
cuneatus; Ceanothus cuneatus.
Drummondii; Colubrina Texensis.
ferreus; Scutia ferrea.
ferrugineus; Colubrina ferruginea.
franguloides; alnifolia.
Humboldtianus; Karwinskia Humboldtiana.
ilicifolius; crocea.
R. laurifolius; Californica.
minutiflorus; Sageretia Michauxii.
obtusifolius; Zizyphus obtusifolius.
oleifolius; Californica.
parvifolius; lanceolata.
scandens; Berchemia volubilis.
Shortii; lanceolata.
Texensis; Colubrina Texensis.
tomentellus; Californica.
umbellatus; Karwinskia Humboldtiana.
volubilis; Berchemia volubilis.

SAGERETIA Michauxii. Brongn. Mem. Rhamn. 53; Ann. Sci. Nat. 1. 10. 360. Don, Mill. 2. 29. Torr. & Gray, Fl. 1. 263. Gray, Genera, 2. 176, t. **166**; Pl. Wright. 2. 28. Curtis, Bot. N. Car. 117. Chapman, 73. Wood, Bot. & Fl. 76.

Rhamnus minutiflorus. Michx. Fl. 1. 154. Persoon, 1. 239. Nouv. Duham. Pursh, 166. Poir. Suppl. 4. 88. Nutt. Genera, 1. 152. Röm. & Schult. 5. 285. Elliott, 1. 289. DC. Prodr. 2. 27. Spreng. Syst. 1. 769. Dietr. Eat. & Wr. 390.

Afarca parviflora. Raf. Sylv. Tellur. 30.

Segreyatia Michauxii. Wood, Cl.-Book, 202.

SCUTIA ferrea. Brongn. Mem. Rhamn. 56; Ann. Sci. Nat. 1. 10. 363. man, 72.

Rhamnus ferreus. Vahl, Symb. 3. 41, **t. 58.**

Zizyphus emarginatus. Swartz, Fl. Ind. Occ. 1954.

Ceanothus ferreus. DC. Prodr. 2. 30.

Condalia ferrea. Griseb. Fl. Brit. W. Ind. 100.

ZIZYPHUS lycioides. Gray, Pl. Lindh. 168; Pl. Wright. 1. 32 & Walp. Ann. 2. 266. Torr. & Gray, Pac. R. Rep. 2. 162. Torrey, Mex. Boun

Z. obtusifolius. Gray, Pl. Lindh. 168; Genera, 2. 170, **t. 163**; Pl. Wrigh & 2. 27. Torrey, Mex. Bound. 46.

Rhamnus (?) *obtusifolius.* Hook.; Torr & Gray, Fl. 1. 685. Young, Fl. 203.

Paliurus Texanus. Scheele in Linn. 21. 594. Walp. Ann. 2. 266.

Z. Parryi. Torrey, Mex. Bound. 46. Walp. Ann. 7. 587.

VITACEÆ.

AMPELOPSIS quinquefolia. Michx. Fl. 1. 160. Röm. & Schult. Syst. James, Long's Exped. 1. 317 & 3. 13. Torrey, Ann. Lyc. N. Y. 2. 178; Fl 1. 148; Sitgr. Rep. 157; Pac. R. Rep. 7. 9; Mex. Bound. 45. Hook. Fl. Bo 1. 114. Torr. & Gray, Fl. 1. 245. Eat. & Wr. 123. Emerson, Mass. Tre Gray, Pl. Fendl. 30; Genera, 2. 166, **t. 162**; Pac. R. Rep. 12. 41; Manu Richard. Arct. Exped. 423. Parry, Pl. Minn. 610. Engelm. Pl. Upp. Mi Curtis, Bot. N. Car. 115. Chapman, 72. Lesqx. Fl. Ark. 354. Desmoul. Soc. Linn. Bord. 24. 1. Bailey, Am. Naturalist, 7. 4, **f. 2.** Porter, Fl. Col.

Hedera quinquefolia. Linn. Spec. 292. Hill, Veg. Syst. 16, **t. 7, f. 2.** Arbust. 59. Roth, Beitr. Bot. 1. 17. Walter, 102. Ait. Hort. Kew. 1. 281.

Vitis hederacea. Ehrh. Beitr. 6. 85. Willd. Spec. 1. 1182; Enum. 267. Dict. 8. 610. Ait. f. Hort. Kew. 2. 52. Bigel. Fl. Bost. 93. Loisel. Nouv. I 7. 210. Spreng. Syst. 1. 778. Dietr. 1. 833. Durand, Bull. Soc. Acclim. Mon. Vit. 60.

Vitis quinquefolia. Lam. Ill. 2. 135. Moench, Meth. 76. Miquel, Ann Lugd.-Bat. 1. 91.

Cissus hederacea. Persoon, 1. 143. Pursh, 170. Nutt. Genera, 1. 144. 1. 305. Torrey, Fl. U. S. 266.

Ampelopsis hirsuta. Donn, Cat. Cantab. 166. Muhl. Cat. 26. Röm. & Syst. 5. 321. DC. Prodr. 1. 633. Don, Mill. 1. 694. Beck, Bot. 66. Arbor. 1. 482.

A. hederacea. DC. Prodr. 1. 633. Don, Mill. 1. 694. Beck, Bot. 65. Hist. Veg. 3. 216. Hook. Jour. Bot. 1. 200. Darling. Fl. Cestr. 153. Lo bor. 1. 482, **f. 146.**

Quinaria hederacea & hirsuta. Raf. Med. Bot. 2. 122.

Ampelopsis heptaphylla. Buckl. in Proc. Acad. Philad. 1861, 450 and 187 fide Gray in same, 1862, 162. Young, Fl. Texas, 202.

VITIS acida. Chapman, 70. Durand, Bull. Soc. Acclim. 9. 486; Mon. Vit. 59. Young, Fl. Texas, 199.

Sicyos trifoliata. Linn. Spec. 1013.

Cissus acida. Linn. Spec. 2 ed. 170. Lam. Dict. 1. 30. DC. Prodr. 1. 630. Griseb. Fl. Brit. W. Ind. 102, with syn.

V. æstivalis. Michx. Fl. 2. 230. Poir. Dict. 8. 608. Pursh, 169. Nutt. Genera, 1. 143. Röm. & Schult. Syst. 5. 317. DC. Prodr. 1. 634. Elliott, 2. 688. Torrey, Fl. U. S. 265; Fl. N. Y. 1. 146; Sitgr. Rep. 157; Emory's Rep. 407; Mex. Bound. 45. Audubon, Birds, t. **111, 114.** Don, Mill. 1. 711. Beck, Bot. 66. Spach, Hist. Veg. 3. 328. Hook. Jour. Bot. 1. 200. Darling. Fl. Cestr. 151. Torr. & Gray, Fl. 1. 244. Eat. & Wr. 480. Bigel. Fl. Bost. 3 ed. 97. Loud. Arbor. 1. 479, f. **142.** Emerson, Mass. Trees, 469. Richard. Arct. Exped. 423. Le Conte, Proc. Acad. Philad. 1853, 271 (Regensb. Flora, 36. 707). Curtis, Bot. N. Car. 111. Chapman, 71. Buckl. in Pat. Off. Rep. 1861, 482. Durand, Bull. Soc. Acclim. 9. 481; Mon. Vit. 49. Miquel, Ann. Mus. Lugd.-Bat. 1. 93. Gray, Manual, 112 & 679; Hall's Pl. Tex 5. Engelm. in Am. Naturalist, 2. 321; Rep. Missouri State Entom. 1872, 61. Planch. in Bull. Soc. France, 21, Compt. Rend. 110.

V. laciniosa & vinifera, var. *Americana.* Marsh. Arbust. 165 & 166.

V. Labrusca. Walter, 243.

V. palmata. Vahl, Symb. 3. 42. Lam. Ill. 2. 135. Willd. Spec. 1. 1180. Persoon, 1. 252. Poir. Dict. 8. 607, referring it doubtfully to *V. vulpina.* Pursh, 170. DC. Prodr. 1. 635. Spreng. Syst. 1. 778. Raf. Med. Bot. 2. 134. Don, Mill. 1. 712. Dietr. 1. 833.

V. vulpina. Jacq. Hort. Schœnb. 4. 13, t. **425,** fide Regel. Planch., l. c. 109, refers it doubtfully to *V. Labrusca.*

V. Virginiana. Poir. Dict. 8. 608. Desf. Cat. Hort. Par. 2 ed. 164. Loisel. Nouv. Duham. 7. 209. DC. Prodr. 1. 635. Raf. Med. Bot. 2. 134.

V. intermedia & labruscoides. Muhl. Cat. 26.

V. sinuata. Don, Mill. 1. 711. Loud. Arbor. 1. 479.

V. bicolor. Le Conte, Proc. Acad. Philad. 1852, 272 (Regensb. Flora, 36. 708).

V. Linsecumii. Buckley, Pat. Off. Rep. 1861, 485; Proc. Acad. Philad. 1861, 451, & 1870, 136. Gray, in same, 1862, 162, referring it to *V. Labrusca.* Durand, Bull. Soc. Acclim. 9. 485; Monog. Vit. 57 & 64. Walp. Ann. 7. 616. Young, Fl. Texas, 200.

V. Labrusca, var. *æstivalis.* Regel, Conspect. Vitis, 396.

Var. (?) **cinerea.** Engelm. in Gray, Manual, 679. Gray, Hall's Pl. Tex. 5.

V. æstivalis, var. Gray, Pl. Lindh. 166; Pl. Wright. 2. 27.

V. æstivalis, var. *canescens.* Engelm. in Am. Naturalist, 2. 321.

Var. **monticola.** Engelm. in Am. Naturalist, 2. 321.

? *V. vulpina.* Gray, Pl. Lindh. 166.

? *V. æstivalis*, var. Gray, Pl. Wright. 1. 32.

V. monticola. Buckley, Pat. Off. Rep. 1861, 485; Proc. Acad. Philad. 1861, 450, & 1870, 136. Gray, in same, 1862, 162, referring it to *V. rupestris.* Durand, Bull. Soc. Acclim. 9. 434; Monog. Vit. 57 & 63. Young, Fl. Texas, 200. Planch. in Bull. Soc. France, 21, Compt. Rend. 111.

V. arborea. Linn. Spec. 203. Marsh. Arbust. 164. Ait. Hort. Kew. 1. 283. Lam. Ill. 2. 135. Moench, Meth. 76. Willd. Spec. 1. 1183; Enum. 267. Jacq. Hort. Schœnbr. 4. 14, t. **428.** Poir. Dict. 8. 609. Loisel. Nouv. Duham. 7. 210. Spreng. Syst. 1. 778. Dietr. 1. 834. Buckley, Pat. Off. Rep. 1861, 486. Koch, Dendr. 1, 558. Regel, Conspect. Vitis, 391.

Hedera arborea. Walter, 102.

Cissus orientalis. Lam. Ill. 1. 332, t. 84, f. 2. Poir. Suppl. 1. 108.

Vitis pinnata. Vahl, Symb. 3. 43. Lam. Ill. 2. 135. Willd. Spec. 1. 1182. Persoon, 1. 253. Poir. Dict. 8. 611. Spreng. Syst. 1. 778.

Ampelopsis bipinnata. Michx. Fl. 1. 160. DC. Prodr. 1. 633. Torrey, Ann. Lyc. N. Y. 2. 172. Don, Mill. 1. 694. Hook. Jour. Bot. 1. 200. Spach, Hist. Veg. 3. 217. Loud. Arbor. 1. 482.

Cissus stans. Persoon, 1. 143. Pursh, 170.

Cissus bipinnata. Nutt. Genera, 1. 144. Elliott, 1. 304. James, Cat. 177; Long's Exped. 3. 13.

Ampelopsis pinnata. DC. Prodr. 1. 633.

Vitis bipinnata. Torr. & Gray, Fl. 1. 243. Eat. & Wr. 480. Engelm. & Gray, Pl. Lindh. 6. Engelm. in Wisliz. Rep. 31. Torrey, Mex. Bound. 45. Curtis, Bot. N. Car. 115. Chapman, 70. Durand, Bull. Soc. Acclim. 9. 486; Monog. Vit. 60. Gray, Manual, 113; Hall's Pl. Tex. 5.

Cissus arborea. Desmoul. in Durand, Monog. Vit. 60.

Vitis orientalis. Boiss. Fl. Orient. 1. 956; fide Maxim. in Diag. Pl. Nov. Jap. dec. 15. 149.

V. Arizonica. Engelm. in Am. Naturalist, 2 321 & 9. 268; Rep. Missouri State Entom. 1872, 62. Planch. in Bull. Soc. France, 21, Compt. Rend. 111.

V. æstivalis, var. (?) Gray, Pl. Wright. 2. 27. Watson, Pl. Wheel. 7.

V. æstivalis. Torrey, Pac. R. Rep. 7. 9.

V. Californica. Benth. Bot. Sulph. 10; Pl. Hartw. 302. Newberry, Pac. R. Rep. 6. 70. Torrey, Mex. Bound. 45; Bot. Wilkes, 265. Buckley, Pat. Off. Rep. 1861, 483. Durand, Bull. Soc. Acclim. 9. 482; Monog. Vit. 54. Engelm. ll. cc. 2. 321, 9. 269, & 62. Boland. Cat. 7. Anderson, Cat. 119. Planch. l. c. 111.

V. Caribæa. Hook. & Arn. Bot. Beechey, 327. Torr. & Gray, Fl. 1. 683.

V. candicans. Engelm.; Gray, Pl. Lindh. 2. 166; Pl. Wright. 1. 32; Hall's Pl. Tex. 5. Durand, Monog. Vit. 51. Koch, Dendr. 1. 550. Engelm. ll. cc. 321 & 62. Planch. l. c. 110.

V. coriacea. Shuttlw. in herb., referred to *V. Caribæa* by Chapman, 71.

V. Mustangensis. Buckley, Pat. Off. Rep. 1861, 482; Proc. Acad. Philad. 1861, 451 & 1870, 136; fide Gray, same, 1862, 162. Durand, Bull. Soc. Acclim. 9. 482. Young, Fl. Texas, 200.

V. Labrusca, var. *typica ficifolia.* Regel, Conspect. Vitis, 396.

V. Caribæa. DC. Prodr. 1. 634. Chapman, 71. Buckley, Pat. Off. Rep. 1861, 483. Durand, Bull. Soc. Acclim. 9. 482; Monog. Vit. 51 & 63. Griseb. Fl. Brit. W. Ind. 102, with syn. Engelm. in Am. Naturalist, 2. 321. Wood, Bot. & Fl. 78. Planch. l. c. 110.

V. Labrusca. Linn. Spec. 203, in part.

V. cordifolia. Lam. Ill. 2. 134? Michx. Fl. 2. 231. Poir. Dict. 8. 609. Pursh, 169. Loisel. Nouv. Duham. 7. 209. Röm. & Schult. Syst. 5. 319. Elliott, 2. 688. DC. Prodr. 1. 634. Spreng. Syst. 1. 777. Raf. Med. Bot. 2. 131. Don, Mill. 1. 711. Hook. Jour. Bot. 1. 200. Spach, Hist. Veg. 3. 229. Torr. & Gray, Fl. 1. 244. Dietr. 1. 832. Eat. & Wr. 480. Nees, Pl. Wied, 5. Torrey, Fl. N. Y. 1. 147. Loud. Arbor. 1. 480, f. 143. Emerson, Mass. Trees, 470. Scheele, Röm. Texas, 433. Richard. Arct. Exped. 423. Engelm. Pl. Upp. Miss. 187; Am. Naturalist, 2. 321 & 9. 269; Rep. Missouri State Entom. 1872, 60. Curtis, Bot. N. Car. 114. Chapman, 71. Buckley, Pat. Off. Rep. 1861, 483. Durand, Bull. Soc. Acclim. 9. 483; Monog. Vit. 54. Gray, Manual, 112 & 679. Planch. l. c. 110, excl. var.

V. vulpina. Muhl. Cat. 26. Torrey, Fl. U. S. 264. Hook. Fl. Bor.-Am. 1. 115.

Beck, Bot. 66. Bigel. Fl. Bost. 3 ed. 97. Le Conte, Proc. Acad. Philad. 1853, 272 (Regensb. Flora, 36. 709).

V. vulpina, var. *cordifolia*. Regel, Conspect. Vitis, 394.

Var. **fœtida**. Engelm. in Am. Naturalist, 2. 321.

V. incisa. Nutt.; Torr. & Gray, Fl. 1. 243. Eat. & Wr. 480. Walp. Rep. 1. 442. Gray, Pl. Lindh. 166; Pl. Wright. 1. 32; Hall's Pl. Tex. 5. Engelm. in Wisliz. Rep. 31. Torrey, Pac. R. Rep. 4. 73; Mex. Bound. 45. Chapman, 70. Buckley, Pat. Off. Rep. 1861, 486. Durand, ll. cc. 486 & 59. Wood, Bot. & Fl. 78. Young, Fl. Texas, 190. Regel, Conspect. Vitis, 393.

Cissus incisa. Desmoul. in Durand, Monog. Vit. 59.

V. indivisa. Willd. Berl. Baumz. 2. 538. Spreng. Syst. 1. 777. Torr. & Gray, Fl. 1. 243. Dietr. 1. 832. Eat. & Wr. 480. Gray, Pl. Wright. 1. 32; Manual, 113; Hall's Pl. Tex. 5. Engelm. Pl. Upp. Miss. 187. Chapman, 71. Buckley, Pat. Off. Rep. 1861, 486. Durand, ll. cc. 486 & 58.

Ampelopsis cordata. Michx. Fl. 1. 159. Röm. & Schult. Syst. 5. 321. DC. Prodr. 1. 633. Torrey, Ann. Lyc. N. Y. 2. 173. Don, Mill. 1. 694. Beck, Bot. 65. Hook. Jour. Bot. 1. 200. Spach, Hist. Veg. 3. 215. Loud. Arbor. 1. 481.

Cissus Ampelopsis. Persoon, 1. 142. Poir. Suppl. 1. 103. Pursh, 170. Elliott, 1. 305. Torrey, Fl. U. S. 266.

Cissus indivisa. Desmoul. in Durand, Monog. Vit. 59.

Vitis heterophylla, var. *cordata*. Regel, Conspect. Vitis, 392.

V. Labrusca. Linn. Spec. 203, in part. Marsh. Arbust. 165. Ait. Hort. Kew. 1. 282. Lam. Ill. 2. 134. Moench, Meth. 75. Willd. Spec. 1. 1181; Enum. 267. Michx. Fl. 2. 230. Jacq. Hort. Schœnb. 4. 13, t. 426. Persoon, 1. 253. Poir. Dict. 8. 606. Pursh, 169. Bigel. Fl. Bost. 93. Loisel. Nouv. Duham. 7. 211. Röm. & Schult. Syst. 5. 316. Elliott, 2. 689. DC. Prodr. 1. 634. Torrey, Fl. U. S. 264; Fl. N. Y. 1. 146. Spreng. Syst. 1. 778. Hook. Fl. Bor.-Am. 1. 115; Jour. Bot. 1. 200. Don, Mill. 1. 711. Beck, Bot. 66. Spach, Hist. Veg. 3. 228. Darling. Fl. Cestr. 150. Torr. & Gray, Fl. 1. 244. Dietr. 1. 832. Eat. & Wr. 480. Loud. Arbor. 1. 479, f. 141. Emerson, Mass. Trees, 467. Gray, Genera, 2. 164, t. 161; Manual, 112. Curtis, Bot. N. Car. 112. Chapman, 71. Le Conte, Proc Acad. Philad. 1853, 270 (Regensb. Flora, 36. 707). Buckley, Pat. Off. Rep. 1861, 481. Durand, Bull. Soc. Acclim. 9. 481; Monog. Vit. 44. Miquel, Ann. Mus. Lugd.-Bat. 1. 93. Engelm. in Am. Naturalist, 2. 321 & 9. 269; Rep. Missouri State Entom. 1872, 61. Regel, Conspect. Vitis, 395, in part. Planch. Bull. Soc. France, 21, Compt. Rend. 110.

V. taurina. Walter, 242.

V. palmata, pullata & tenuifolia. Le Conte, ll. cc. 271 & 707.

? *V. bracteata*. Le Conte, ll. cc. Raf. Med. Bot. 2. 125. Durand, Monog. Vit. 49.

V. riparia. Michx. Fl. 2. 231. Poir. Dict. 8. 609. Pursh, 169. Röm. & Schult. Syst. 5. 319. Sims, Bot. Mag. t. 2429. Elliott, 2. 688. DC. Prodr. 1. 635. Torrey, Fl. U. S. 265; Fl. N. Y. 1 147. Spreng. Syst. 1. 777. Raf. Med. Bot. 2. 131. Don, Mill. 1. 711. Beck, Bot. 66. Hook. Jour Bot. 1. 200. Spach, Hist. Veg. 3. 229. Torr. & Gray, Fl. 1. 244. Dietr. 1. 832. Eat. & Wr. 480. Loud. Arbor. 1. 480. Emerson, Mass. Trees, 470. Gray, Manual, 1 ed. 86. Parry, Pl. Minn. 610. Le Conte, Proc. Acad. Philad. 1853, 273 (Regensb. Flora, 36. 708). Engelm. Pl. Upp. Miss. 187; Am. Naturalist, 2. 321 & 9. 269; Gray's Manual, 679; Rep. Missouri State Entom. 1872, 61. Porter, Hayd. Rep. 1870, 474; Fl. Col. 19.

? *V. vulpina*. Linn. Spec. 203, in part, fide Planch. l. c. 109.

V. incisa. Jacq. Hort. Schœnb. 4. 14, t. 427.

V. odoratissima. Donn, Cat. Cant. 66. Raf. Med. Bot. 2. 132. Le C 273 & 709.

? *V. cordifolia.* Darling. Fl. Cestr. 151.

V. cordifolia, var. *riparia.* Gray, Manual, 113. Chapman, 71. D Soc. Acclim. 9. 483; Monog. Vit. 55. Planch. Bull. Soc. France, Rend. 110.

V. vulpina, var. *riparia.* Regel, Conspect. Vitis, 395.

V. rupestris. Scheele, Linn. 21. 591. Gray, Pl. Lindh. 165; Pl. W Ives's Rep. 9. Walp. Ann. 2. 231. Torrey, Marcy's Rep. 282; Pac. R Torr. & Gray, same, 2. 162. Buckley, Pat. Off. Rep. 1861, 485. D 484, 56 & 63. Engelm. in Am. Naturalist, 2. 322; Rep. Miss. Entor Young, Fl. Texas, 201. Planch. l. c. 111.

V. vulpina. Linn. Spec. 203, in part, fide Planch. l. c. 109. Marsh. Walter, 248. Ait. Hort. Kew. 1. 282. Lam. Ill. 2. 134. Moench, Meth Spec. 1. 1181; Enum. 267. Persoon, 1. 253. Poir. Dict. 8. 607. Röi Syst. 5. 317. Loisel. Nouv. Duham. 7. 211. Spreng. Syst. 1. 778. Ra 2. 132. Torr. & Gray, Fl. 1. 245. Dietr. 1. 832. Eat. & Wr. 480. N. Car. 113. Chapman, 71. Lesqx. Fl. Ark. 353. Miquel, Ann. Mus 1. 93. Gray, Manual, 113; Hall's Pl. Tex. 5. Engelm. in Am. Natu & 9. 269; Rep. Miss. Entom. 1872, 62. Regel, Conspect. Vitis, 394.

V. rotundifolia. Michx. Fl. 2. 231. Poir. Dict. 8. 609. Pursh, 1(2. 687. DC. Prodr. 1. 635. Audubon, Birds, t. 44. Spreng. Syst. 1. 7 Hist. Veg. 3. 330. Don, Mill. 1. 711. Hook. Jour. Bot. 1. 200. I Loud. Arbor. 1. 480. Le Conte, Proc. Acad. Philad. 1853, 273 (Reg 36. 709). Buckley, Pat. Off. Rep. 1861, 484. Durand, ll. cc. 484 & 56 Am. Naturalist, 1. 638, fig. Planch. l. c. 109.

V. æstivalis; Arizonica.
bicolor; æstivalis.
bipinnata; arborea.
bracteata; Labrusca.
Caribæa; Californica.
cordifolia; riparia.
coriacea; candicans.
hederacea; Ampelopsis quinquefolia.
heterophylla; indivisa.
incisa; riparia.
intermedia; æstivalis.
Labrusca; æstivalis, candicans & Caribæa.
labruscoides, laciniosa & Linsecumii; æstivalis.
V. monticola; æstivalis.
Mustangensis; candicans.
odoratissima; riparia.
orientalis; arborea.
palmata; æstivalis, Labru
pinnata; arborea.
pullata; Labrusca.
quinquefolia; Ampelopsis folia.
rotundifolia; vulpina.
sinuata; æstivalis.
taurina & tenuifolia; Labr
vinifera & Virginiana: æst
vulpina; æstivalis, ripari folia.

SAPINDACEÆ.

ACER circinatum. Pursh, 266. Poir. Suppl. 5. 669. Nutt. Gene Jour. Acad. Philad. 7. 16, excl. syn.; Sylva, 2. 80, t. 68. DC. Pr Spreng. Syst. 2. 225. Hook. Fl. Bor.-Am. 1. 112, t. 39. Don, Mill. 1. 6

Ann. Sci. Nat. 2. 2. 166; Hist. Veg. 3. 97. Torr. & Gray, Fl. 1. 247. Eat. & Wr. 112. Dietr. 2. 1282. Loud. Arbor. 1. 422, **f. 112, 127.** Richard. Arct. Exped. 422. Lindl. in Paxt. Fl. Gard. 2. 146, **f. 211** (Fl. Serres, 7. 210, **fig.**). Newberry, Pac. R. Rep. 6. 21 & 69. Cooper, same, 12. 28 & 57. Gray, Proc. Am. Acad. 8. 379. Torrey, Bot. Wilkes, 258.

A. dasycarpum. Ehrh. Beitr. 4. 24. Moench, Meth. 56. Persoon, 1. 417. Willd. Spec. 4. 985; Enum. 1044. Ait. f. Hort. Kew. 5. 446. Pursh, 266. Nutt. Genera, 1. 252; Sylva, 2. 87. Elliott, 1. 449. Bigel. Fl. Bost. 379. Torrey, Fl. U. S. 396; Fl. N. Y. 1. 136, **t. 18**; Nicol. Rep. 147. Spreng. Syst. 2. 225. Tausch, Regensb. Flora, 12². 553. Hook. Fl. Bor.-Am. 1. 113; Jour. Bot. 1. 200. Torr. & Gray, Fl. 1. 248. Eat. & Wr. 112. Loud. Arbor. 1. 423, **t. 37, 38** & **fig. 129.** Emerson, Mass. Trees, 487. Richard. Arct. Exped. 423. Parry, Pl. Minn. 610. Curtis, Bot. N. Car. 51. Chapman, 81. Buchenau, Bot. Zeit. 19. 285, **t. 11, figs.** Gray, Struct. Bot. 410, **fig. 781–788**; Manual, 119.

A. saccharinum. Linn. Spec. 1055, fide herb.

A. rubrum, var. *pallidum.* Ait. Hort. Kew. 3. 434.

A. eriocarpum. Michx. Fl. 2. 253. Desf. in Ann. Mus. 7. 412, **t. 25, f. 1.** Poir. Suppl. 2. 573. Tratt. Archiv. 1, **t. 8.** Michx. f. Arbr. Amer. 2. 205, **t. 13.** Loisel. Nouv. Duham. 4. 30. DC. Prodr. 1. 595. Don, Mill. 1. 650. Beck, Bot. 63. Spach, Hist. Veg. 3. 116; Ann. Sci. Nat. 2. 2. 177. Darling. Fl. Cestr. 245. Dietr. 2. 1282. Meehan, Proc. Acad. Philad. 1868, 140.

A. glabrum. Torrey, Ann. Lyc. N. Y. 2. 172; Bot. Wilkes, 259. Don, Mill. 1. 650. Torr. & Gray, Fl. 1. 247 & 684. Eat. & Wr. 112. Walp. Rep. 1. 409. Nutt. Sylva, 2. 86. Engelm. Pl. Upp. Miss. 187. Newberry, Pac. R. Rep. 6. 69. Cooper, same, 12. 51 & 57; Am. Naturalist, 3. 406. Gray, Am. Jour. Sci. 2. 34. 259; Proc. Acad. Philad. 1863, 59. Boland. Cat. 8. Porter, Hayd. Rep. 1870, 474; 1871, 480; Fl. Col. 19. Watson, King's Rep. 5. 52. Coulter, Hayd. Rep. 1872, 763. Rothrock, Pl. Wheel. 36.

A. barbatum. Dougl.; Hook. Fl. Bor.-Am. 1. 113. Loud. Arbor. 1. 420, **f. 125,** excl. syn.

A. Douglasii. Hook. in Lond. Jour. Bot. 6. 77, **t. 6.**

A. tripartitum. Nutt.; Torr. & Gray, Fl. 1. 247. Dietr. 2. 1281. Eat. & Wr. 112. Walp. Rep. 1. 409. Gray, Pl. Fendl. 28; Pac. R. Rep. 4. 73. Nutt. Sylva, 2. 85, **t. 71.** Newberry, Pac. R. Rep. 6. 69.

A. grandidentatum. Nutt.; Torr. & Gray, Fl. 1. 247. Dietr. 2. 1283. Eat. & Wr. 112. Walp. Rep. 1. 409. Nutt. Sylva, 2. 82, **t. 69.** Watson, King's Rep. 5. 52; Pl. Wheel. 7. Porter, Hayd. Rep. 1871, 480. Parry, Am. Nat. 9. 201 & 268.

A. macrophyllum. Pursh, 267. Poir. Suppl. 5. 669. Nutt. Genera, 1. 253; Sylva, 2. 77, **t. 67.** DC. Prodr. 1. 594. Spreng. Syst. 2. 225. Hook. Fl. Bor.-Am. 1. 112, **t. 38.** Don, Mill. 1. 648. Spach, Ann. Sci. Nat. 2. 2. 165. Torr. & Gray, Fl. 1. 246. Hook. & Arn. Bot. Beechey, 327. Dietr. 2. 1281. Eat. & Wr. 112. Loud. Arbor. 1. 408, **t. 28, f. 117, 118.** Benth. Pl. Hartw. 301. Richard. Arct. Exped. 423. Durand, Pl. Pratten. 84. Torrey, Pac. R. Rep. 4. 74; Mex. Bound. 47; Bot. Wilkes, 258. Newberry, Pac. R. Rep. 6. 21 & 69. Cooper, same, 12. 28 & 57. Boland. Proc. Calif. Acad. 3. 78; Cat. 8. Rothr. Alaska, 434. Wood, Bot. & Fl. 74. Gray, Proc. Am. Acad. 8. 379.

? *A. Murrayanum*, Hort. "Farmer, 1867, 821" (Gard. Chronicle, 1873, 1632).

A. Mexicanum. Gray, Proc. Am. Acad. 5. 176. (Northeastern Mexico.)

A. Pennsylvanicum. Linn. Spec. 1055. Ait. Hort. Kew. 3. 435. Michx. Fl. 2. 252. Willd. Spec. 4. 989; Enum. 1045. Loisel. Nouv. Duham. 4. 32. Tratt. Archiv. 1, **t. 11.** Elliott, 1. 451. Torrey, Fl. U. S. 397; Fl. N. Y. 1. 135. Spreng.

Syst. 2. 224. Hook. Fl. Bor.-Am. 1. 111. Torr. & Gray, Fl. 1. 246. En Mass. Trees, 496. Gray, Genera, 2. 200, t. **174**, f. **1–3** (fl.); Manual, 119. ard. Arct. Exped. 422. Curtis, Bot. N. Car. 52. Chapman, 80. Buchena Zeit. 19. 285, t. **11**, f. **24**.

A. Canadense. Marsh. Arbust. 4.

A. striatum. DuRoi, Diss. 58; Harbk. 1. 8, t. **1**. Wangenh. Amer. 29, t. **1** Lam. Dict. 2. 381. Ehrh. Beitr. 4. 25. Moench, Meth. 56. Persoon, Michx. f. Arbr. Amer. 2. 242, t. **17**. Pursh, 267. Nutt. Genera, 1. 253. Prodr. 1. 593. Bigel. Fl. Bost. 379. Watson, Dendr. t. **70**. Don, Mill. Beck, Bot. 64. Spach, Hist. Veg. 3. 85; Ann. Sci. Nat. 2. 2. 162. Dietr. 2 Eat. & Wr. 112. Loud. Arbor. 1. 407, t. **27** & f. **116**.

A. rubrum. Linn. Spec. 1055. DuRoi, Diss. 59. Marsh. Arbust. 3. Lam 2. 380; Ill. t. **844**, f. **3**. Ehrh. Beitr. 4. 23. Ait. Hort. Kew. 3. 434, exc Moench, Meth. 56. Michx. Fl. 2. 253. Persoon, 1. 417. Loisel. Nouv. D 4. 81. Willd. Spec. 4. 984; Enum. 1044. Desf. in Ann. Mus. 7. 413, t. **2** Poir. Suppl. 2. 574. Tratt. Archiv. 1, t. **9**. Michx. f. Arbr. Amer. 2. 210 Pursh, 265. Bigel. Fl. Bost. 377. Nutt. Genera, 1. 252. Elliott, 1. 449. Long's Exped. 2. 345. Torrey, Fl. U. S. 395; Fl. N. Y. 1. 137. Watson, t. **169**. Spreng. Syst. 2. 225. Audubon, Birds, t. **54**, **67**. Tausch, Regensb. 12². 552. Hook. Fl. Bor.-Am. 1. 114; Jour. Bot. 1. 199. Don, Mill. 1. 650. Bot. 63. Spach, Hist. Veg. 3. 113; Ann. Sci. Nat. 2. 2. 176. Darling. Fl. 244. Torr. & Gray, Fl. 1. 249 & 684. Dietr. 2. 1282. Eat. & Wr. 112. Rep. 1. 409. Loud. Arbor. 1. 424, t. **39**, **40** & f. **130**. Emerson, Mass. Tre Richard. Arct. Exped. 422. Nutt. Sylva, 2. 87. Engelm. Pl. Upp. Mis Curtis, Bot. N. Car. 50. Chapman, 81. Buchenau, Bot. Zeit. 19. 285, t. **1** Pl. Bourgeau, 255. Gray, Manual, 119.

? *A. glaucum.* Marsh. Arbust. 2.

? *A. Carolinianum.* Walter, 251.

A. coccineum. Michx. f. Arbr. Amer. 2. 203.

A. sanguineum. Spach, Ann. Sci. Nat. 2. 2. 176; Hist. Veg. 3. 115. 2. 1282.

A. Drummondii. Hook. & Arn. in Hook. Jour. Bot. 1. 199. Nutt. Sylva t. **70**.

A. saccharinum. Wangenh. Amer. 36, t. **11**, f. **26**. Lam. Dict. 2. 379. 251. Ait. Hort. Kew. 3. 434. Ehrh. Beitr. 4. 24. Persoon, 1. 417. Loisel. Duham. 4. 29, t. **8**. Willd. Spec. 4. 985; Enum. 1044. Tratt. Archiv. Michx. f. Arbr. Amer. 2. 218, t. **15**. Pursh, 266. Bigel. Fl. Bost. 378. 1. 450. Richard. Frankl. Journ. 26; Arct. Exped. 422. DC. Prodr. 1. 595. rey, Fl. U. S. 396; Fl. N. Y. 1. 135. Spreng. Syst. 2. 225. Hook. Fl. Bo 1. 113. Don, Mill. 1. 650. Beck, Bot. 63. Spach, ll. cc. 170 & 99. Darli Cestr. 245. Torr. & Gray, Fl. 1. 248. Eat. & Wr. 112. Dietr. 2. 1282. Rep. 1. 410. Nees, Pl. Wied, 5. Loud. Arbor. 1. 411, t. **31** & f. **122**. En Mass. Trees, 489. Gray, Genera, 2. 200, t. **174**; Manual, 119. Nutt. Sylva Parry, Pl. Minn. 610. Engelm. Pl. Upp. Miss. 187. Chapman, 80.

A. saccharum. Marsh. Arbust. 4.

A. barbatum. Michx. Fl. 2. 252. Willd. Spec. 4. 989. Poir. Suppl. Pursh, 266. Elliott, 1. 451. DC. Prodr. 1. 595. Torrey, Fl. U. S. 396. S Syst. 2. 224. Don, Mill. 1. 649. Beck, Bot. 63. Spach, ll. cc. 178 & 118. & Gray, Fl. 1. 249 & 684. Eat. & Wr. 112. Curtis, Bot. N. Car. 51.

Var. **nigrum.** Torr. & Gray, Fl. 1. 248. Torrey, Fl. N. Y. 1. 136. Gray ual, 119.

A. saccharinum. Michx. Fl. 2. 252.

A. nigrum. Michx. f. Arbr. Amer. 2. 238, t. 16. Pursh, 266. Poir. Suppl. 5. 669. Nutt. Genera, 1. 253. Elliott, 1. 450. DC. Prodr. 1. 595. Torrey, Fl. U. S. 397. Spreng. Syst. 2. 225. Don, Mill. 1. 650. Beck, Bot. 63. Spach, ll. cc. 170 & 104. Dietr. 2. 1282. Eat. & Wr. 112. Gray, Am. Naturalist, 6. 767 & 7. 422.

Var. **Floridanum.** Chapman, 80.

A. spicatum. Lam. Dict. 2. 381. Ait. Hort. Kew. 3. 435. Persoon, 1. 417. DC. Prodr. 1. 593. Guimp. Otto & Hayne, t. 48. Don, Mill. 1. 648. Audubon, Birds, t. 134. Beck, Bot. 64. Spach, ll. cc. 163 & 87. Torr. & Gray, Fl. 1. 246. Dietr. 2. 1281. Eat. & Wr. 112. Torrey, Fl. N. Y. 1. 135. Loud. Arbor. 1. 406, t. 26. Emerson, Mass. Trees, 497. Richard. Arct. Exped. 422. Curtis, Bot. N. Car. 52. Chapman, 80. Pl. Bourgeau, 255. Gray, Manual, 119.

A. Pennsylvanicum. DuRoi, Diss. 61; Harbk. 1. 22, t. 1. Wangenh. Amer. t. 12, f. 30. Marsh. Arbust. 2.

A. parviflorum. Ehrh. Beitr. 4. 25 & 6. 40. Moench, Meth. 56.

A. montanum. Ait. Hort. Kew. 3. 435. Michx. Fl. 2. 253. Willd. Spec. 4. 988; Enum. 1045. Loisel. Nouv. Duham. 4. 33. Tratt. Archiv. 1, t. 13. Pursh, 267. Elliott, 1. 452. Bigel. Fl. Bost. 379. Torrey, Fl. U. S. 398. Spreng. Syst. 2. 224. Hook. Fl. Bor.-Am. 1. 111.

A. barbatum; glabrum, saccharinum.
Californicum; Negundo Californicum.
Canadense; Pennsylvanicum.
Carolinianum & coccineum; rubrum.
Douglasii; glabrum.
Drummondii; rubrum.
eriocarpum; dasycarpum.
glaucum; rubrum.
montanum; spicatum.
A. Murrayanum; macrophyllum.
Negundo; Negundo aceroides.
nigrum; saccharinum.
parviflorum & Pennsylvanicum; spicatum.
rubrum & saccharinum; dasycarpum.
sanguineum; rubrum.
striatum; Pennsylvanicum.
tripartitum; glabrum.

ÆSCULUS arguta. Buckley, Proc. Acad. Philad. 1860, 443. Young, Fl. Texas, 209.

? *Æ. glabra.* Gray, Hall's Pl. Tex. 5.

Æ. Californica. Nutt.; Torr. & Gray, Fl. 1. 251. Hook. & Arn. Bot. Beechey, 327. Dietr. 2. 1225. Eat. & Wr. 116. Walp. Rep. 1. 424. Benth. Bot. Sulph. 9; Pl. Hartw. 301. Nutt. Sylva, 2. 69, t. 64. Durand, Pl. Pratten. 85. Rev. Hort. 4. 150, f. 10, 11. Torrey, Pac. R. Rep. 4. 74; Mex. Bound. 48; Bot. Wilkes, 260. Newberry, Pac. R. Rep. 6. 20 & 69, f. 1. Hook. Bot. Mag. t. 5077. Fl. Serres, 13. 39, t. 1312. Gray, Proc. Bost. Soc. Nat. Hist. 7. 146. Boland. Proc. Calif. Acad. 3. 78; Cat. 8. Walp. Ann. 7. 624.

Calothyrsus Californicus. Spach, Rev. Hipp. in Ann. Sci. Nat. 2. 2. 62; Hist. Veg. 3. 35.

Pavia Californica. Hartw. in Jour. Hort. Soc. Lond. 2. 123. Carrière, Rev. Hort. 1862, 369, fig.

Æ. flava. Ait. Hort. Kew. 1. 494. Willd. Berl. Baum. 13; Spec. 2. 286; Enum. 405. Barton, Bot. Appx. 26, t. 15, f. 2. Pursh, 255. Elliott, 1. 436. James, Long's Exped. 1. 317. Guimp. Otto & Hayne, t. 23. Watson, Dendr. t. 163. Lodd. Cab. t. 1280. Torr. & Gray, Fl. 1. 252. Dietr. 2. 1225. Eat. & Wr. 116.

Walp. Rep. 1. 424. Torrey, Pac. R. Rep. 4. 74. Curtis, Bot. N. Car. 48. C[illegible] man, 80. Gray, Manual, 118.

Æ. octandra. Marsh. Arbust. 4.

Pavia flava. Moench, Meth. 66. DC. Prodr. 1. 598. Don, Mill. 1. 653. Spach, ll. cc. 55 & 25. Loud. Arbor. 1. 471, t. **54, 55.**

Æ. lutea. Wangenh. in Act. Nat. Scrut. Berol. 8. 133, t. **6.** Michx. Fl. 1. [illegible] Persoon, 1. 403.

Pavia lutea. Poir. Dict. 5. 94. Nouv. Duham. 3. 155, t. **38.** Michx. f. Arbr. Amer. 3. 237, t. **11.**

Æ. neglecta. Lindl. Bot. Reg. 12, t. **1009.**

Pavia neglecta. Don, Mill. 1. 653. Spach, ll. cc. 55 & 24. Loud. Arbor. 1. 4[illegible]

Var. **purpurascens.** Gray, Manual, 118.

Æ. hybrida. DC. Hort. Monsp. 1813, 75. Poir. Suppl. 4. 334.

Æ. discolor. Pursh, 255. Ker, Bot. Reg. 4, t. **310.** Elliott, 1. 436. Sprengel Syst. 2. 167. Eat. & Wr. 116. Del. Sem. Hort. Marb. 1853 (Linn. 26. 751). Wal[illegible] Ann. 4. 381.

Pavia discolor. Poir. Suppl. 5. 769. Don, Mill. 1. 653. Spach, ll. cc. 57 & 2[illegible] Loud. Arbor. 1. 472.

Pavia hybrida. DC. Prodr. 1. 598. Don, Mill. 1. 653. Spach, ll. cc. 56 & 2[illegible] Eat. & Wr. 116. Loud. Arbor. 1. 472.

Æ. Pavia, var. *discolor.* Torr. & Gray, Fl. 1. 252. Walp. Rep. 1. 424.

Æ. glabra. Willd. Enum. 405. Pursh, 255. DC. Prodr. 1. 597. Torrey, Fl. U. S. 384. Guimp. Otto & Hayne, t. **24.** Spreng. Syst. 2. 166. Don, Mill. 1. 652. Beck, Bot. 65. Torr. & Gray, Fl. 1. 251. Dietr. 2. 1225. Eat. & Wr. 115. Walp. Rép. 1. 424. Loud. Arbor. 1. 467, f. **133.** Gray, Genera, 2. 207, t. **176, 177**; Manual, 118. Engelm. Pl. Upp. Miss. 187. Chapman, 70.

Æ. pallida. Willd. Enum. 406. DC. Prodr. 1. 597. Guimp. Otto & Hayne, t. **25.** Spreng. Syst. 2. 166. Don, Mill. 1. 650. Lindl. Bot. Reg. 24, t. **51.** Loud. Arbor. 1. 468, f. **134.**

Æ. echinata. Muhl. Cat. 38.

Æ. Ohioensis. Michx. f. Arbr. Amer. 3. 242. Poir. Suppl. 3. 593. DC. Prodr. 1. 597. Don, Mill. 1. 652. Riddell, Syn. Fl. West. States, 34. Loud. Arbor. 1. 467. Nutt. Sylva, 2. 71.

? *Æ. carnea.* Guimp. Otto & Hayne, t. **22.** Lindl. Bot. Reg. 18, t. **1056.** Watson, Dendr. t. **121.** Don, Mill. 1. 652. Torr. & Gray, Fl. 1. 253. Walp. Rep. 1. 425.

? *Æ. rubicunda.* Loisel. Herb. Amat. t. **367.** DC. Rapp. Jard. Gen. 1828, 8; Prodr. 1. 597; Rar. Pl. Gen. 88, t. **24.** Spreng. Syst. 2. 166. Lodd. Cab. t. **1242.** Don, Mill. 1. 652. Dietr. 2. 1225. Loud. Arbor. 1. 467, t. **50.**

Pavia glabra & pallida. Spach, Ann. Sci. Nat. 2. 2. 54; Hist. Veg. 3. 23.

? *Pavia carnea.* Spach, ll. cc. 53 & 22. Don in Sweet's Brit. Fl. Gard. 2 ser. t. **301.**

? *Pavia Watsoniana.* Spach, ll. cc. 53 & 21. Torr. & Gray, Fl. 1. 253.

? *Æ. Watsoniana.* Dietr. 2. 1225. Walp. Rep. 1. 425.

Æ. parviflora. Walter, 128. Barton, Bot. Appx. 26, t. **15.** Ait. f. Hort. Kew. 2. 335. Torr. & Gray, Fl. 1. 251. Dietr. 2. 1255. Walp. Rep. 1. 424. Chapman, 80. Wood, Cl.-Book, 288; Bot. & Fl. 75.

Æ. macrostachya. Michx. Fl. 1. 220. Persoon, 1. 403. Jacq. Ecl. Am. 1. 17, t. **9.** Poir. Suppl. 4. 334. Bot. Mag. t. **2118.** Elliott, 1. 436. Colla, Hort. Ripul. t. **19.** Guimp. Otto & Hayne, t. **26.** Spreng. Syst. 2. 166. Eat. & Wr. 116. Nutt. Sylva, 2. 71.

Pavia alba. Poir. Dict. 5. 95. Nouv. Duham. 3. 156.

Pavia macrostachya. Loisel. Herb. Amat. t. **212.** DC. Prodr. 1. 598. Don, Mill. 1. 652. Loud. Arbor. 1. 473, f. **137.**

Macrothyrsus discolor. Spach, Il. cc. 61 & 34.

Æ. Pavia. Linn. Spec. 344. Marsh. Arbust. 5. Walter, 128. Ait. Hort. Kew. 1. 494. Swartz, Obs. Bot. 140. Willd. Berl. Baum, t. **12**; Spec. 2. 286; Enum. 404. Michx. Fl. 1. 219. Barton, Bot. Appx. 26, t. **15**, f. **3.** Persoon, 1. 403. Pursh, 254. Elliott, 1. 435. Watson, Dendr. t. **120** & **1643.** Guimp. Otto & Hayne, t. **21.** Lindl. Bot. Reg. 12, t. **993.** Spreng. Syst. 2. 166. Audubon, Birds, t. **78.** Torr. & Gray, Fl. 1. 252. Dietr. 2. 1225. Walp. Rep. 1. 424. Curtis, Bot. N. Car. 48. Chapman, 79. Gray, Struct. Bot. 409, f. **773–780**; Manual, 118.

Pavia rubra. Lam. Ill. 2. 407, t. **273.** Moench, Meth. 65. Poir. Dict. 5. 94. Nouv. Duham, 3. 154. DC. Prodr. 1. 598. Turpin, Dict. Sci. Nat. 38. 159, t. **165,** 166. Don, Mill. 1. 653. Hook. Jour. Bot. 1. 200. Eat. & Wr. 116. Loud. Arbor. 1. 469, t. **51, 52** & f. **135.**

? *Æ. humilis.* Lodd. Cat.; Lindl. Bot. Reg. 12, t. **1018.** Torr. & Gray, Fl. 1. 253. Walp. Rep. 1. 425.

? *Pavia humilis.* Don in Loud. Hort. Brit. 143; Mill. 1. 653. Spach, Hist. Veg. 3. 31. Dietr. 2. 1225.

Pavia atropurpurea, Lindleyana, Willdenoviana, lucida, intermedia, & *Michauxii.* Spach, Ann. Sci. Nat. 2. 2. 56–60; Hist. Veg. 3. 27–33.

? *Pavia livida, mutabilis* & *versicolor.* Spach, Il. cc. 55 & 26.

? *Æ. versicolor.* Del. Sem. Hort. Marb. 1853 (Linn. 26. 751). Walp. Ann. 4. 381.

Æ. carnea & *echinata*; glabra.
discolor; flava.
glabra; arguta.
humilis; Pavia.
hybrida & *lutea*; flava.
macrostachya; parviflora.
Æ. neglecta & *octandra*; flava.
Ohioensis & *pallida*; glabra.
Pavia; flava.
rubicunda; glabra.
versicolor; Pavia.
Watsoniana; glabra.

CARDIOSPERMUM Halicacabum. Linn. Spec. 366. See syn. in Blume, Rumphia, 3. 183 (Walp. Ann. 2. 207); Griseb. Fl. Brit. W. Ind. 122. — Michx. Fl. 1. 242. Nutt. Genera, 1. 257. Elliott, 1. 460. James, Long's Exped. 3. 8; Cat. 180. DC. Prodr. 1. 601. Torrey, Ann. Lyc. N. Y. 2. 172; Pac. R. Rep. 4. 74; Mex. Bound. 47. Torr. & Gray, Fl. 1. 254. Eat. & Wr. 169. Gray, Genera, 2. 216, t. **181.** Scheele, Röm. Texas, 433. Chapman, 79. Wood, Cl.-Book, 289; Bot. & Fl. 75.

Var. microcarpum. Blume, l. c.

C. microcarpum. HBK. Nov. Gen. 5. 104. DC. Prodr. 1. 601. Griseb. l. c. 122.

C. tortuosum. Benth. Bot. Sulph. 9, t. **6.** Gray, Proc. Am. Acad. 5. 155. (Lower California.)

DODONÆA viscosa. Linn. Mant. 238. See syn. in DC. Prodr. 1. 616; Gray, Bot. Wilkes' Expl. Exped. 260; Benth. Fl. Austr. 475; Griseb. Fl. Brit. W. Ind. 127. — Torr. & Gray, Fl. 1. 255. Eat. & Wr. 227. Gray, Genera, 2. 218, t. **182.** Chapman, 77.

D. Burmanniana. DC. Prodr. 1. 616. Griseb. l. c. 127.

D. Schiedeana. Schlecht. in Linn. 18. 49. Walp. Rep. 1. 369. Torrey, Mex. Bound. 48.

HYPELATE paniculata. Cambess. Mem. Sapind. 32. Don, Mill. 1. 671. Chapman, 78. Griseb. Fl. Brit. W. Ind. 127, with syn.

Melicocca paniculata. Juss. Mem. Mus. 3. 187, **t. 5.** DC. Prodr. 1. 615. Nutt. Sylva, 2. 74, **t. 65.**

Exothea oblongifolia. Macf. Fl. Jam. 232.

H. oblongifolia. Hook. in Lond. Jour. Bot. 3. 226, **t. 7.**

H. trifoliata. Swartz, Fl. Ind. Occ. 2. 655, **t. 14.** Deless. Icon. 3, **t. 39.** DC. Prodr. 1. 614. Chapman, 78. Griseb. l. c. 127.

NEGUNDO aceroides. Moench, Meth. 334. Torr. & Gray, Fl. 1. 250. Eat. & Wr. 327. Torrey, Nicol. Rep. 147; Frem. Rep. 88; Pac. R. Rep. 4. 73. Gray, Pl. Lindh. 166; Pl. Fendl. 29; Genera, 2. 202, **t. 175**; Pl. Thurb. 300; Pac. R. Rep. 12. 41; Manual, 120. Richard. Arct. Exped. 423. Parry, Pl. Minn. 610. Nutt. Sylva, 2. 91. Engelm. Pl. Upp. Miss. 188. Curtis, Bot. N. Car. 53. Chapman, Bl. Pl. Bourgeau, 255. Cooper, Am. Naturalist, 3. 306. Porter, Hayd. Rep. 1870, 47; Fl. Col. 19. Watson, King's Rep. 5. 52; Pl. Wheel. 7.

Acer Negundo. Linn. Spec. 1056. Wangenh. Amer. 80, **t. 12, f. 29.** Marsh. Arbust. 2. Lam. Dict. 2. 380. Walter, 250. Ait. Hort. Kew. 3. 436. Michx. Fl. 2. 253. Persoon, 1. 418. Willd. Spec. 4. 992. Nouv. Duham. 4. 27, **t. 7.** Trat. Archiv. 1, **t. 40.** Michx. f. Arbr. Amer. 2. 247, **t. 18.** Pursh, 268. Elliott, 1. 452. James, Cat. 180; Long's Exped. 2. 194. Torrey, Fl. U. S. 298; Ann. Lyc. N. Y. 2. 172; Emory's Rep. 407. Spreng. Syst. 2. 225. Guimp. Otto & Hayne, **t. 95.** Dietr. 2. 1283. Loud. Arbor. 1. 460, **t. 46, 47.** Buchenau, Bot. Zeit. 19. 285, **t. 11, figs.** Baill. Hist. Pl. 5. 374, **f. 426.**

Negundium fraxinifolium. Raf. Med. Rep. 5. 354. Desv. Journ. Bot. 5. 170.

Negundo fraxinifolium. Nutt. Genera, 1. 253. DC. Prodr. 1. 596. Hook. Fl. Bor.-Am. 1. 114; Jour. Bot. 1. 200. Don, Mill. 1. 651. Beck, Bot. 64. Spach, Hist. Veg. 3. 119. Scheele, Röm. Texas, 433. Schnizl. Icon. **t. 227, f. 2, 18.**

N. Californicum. Torr. & Gray, Fl. 1. 250 & 684. Hook. & Arn. Bot. Beechey, 327, **t. 77.** Eat. & Wr. 327. Walp. Rep. 1. 410. Benth. Pl. Hartw. 301. Scheele, Röm. Texas, 433? Nutt. Sylva, 2. 90, **t. 72.**

Acer Californicum. Dietr. 2. 1283.

Negundo aceroides. Torrey, Pac. R. Rep. 4. 74; Mex. Bound. 47; **Bot. Wilkes,** 259. Boland. Proc. Calif. Acad. 3. 78; Cat. 8. Anderson, Cat. 119.

PAULLINIA subalata. Gray, in herb.

Serjania —— ? Gray, Pl. Wright. 1. 38.

SAPINDUS marginatus. Willd. Enum. 432. Muhl. Cat. 41. DC. Prodr. 1. 607. Spreng. Syst. 2. 250. Don, Mill. 1. 665. Torr. & Gray, Fl. 1. 255 & 685; Pac. R. Rep. 2. 162. Eat. & Wr. 411. Leavenworth, Am. Jour. Sci. 1. 49. 180. Engelm. & Gray, Pl. Lindh. 33. Gray, Pl. Lindh. 168; Genera, 2. 214, **t. 180**; Pl. Wright. 1. 38; Hall's Pl. Tex. 5. Engelm. in Wisliz. Rep. 12. Torrey, Emory's Rep. 138; Marcy's Rep. 282; Pac. R. Rep. 4. 2. & 74; Mex. Bound. 47. Nutt. Sylva, 2. 72, **t. 66.** Chapman, 79. Wood, Cl.-Book, 288; Bot. & Fl. 75.

S. Saponaria. Lam. Ill. 2. 441, **t. 307,** not Linn. Michx. Fl. 1. 242. Poir. Dict. 6. 663, in part. Persoon, 1. 444. Pursh, 274. Nutt. Genera, 1. 257. Elliott, 1. 460. Torrey, Ann. Lyc. N. Y. 2. 172.

S. inæqualis. DC. Prodr. 1. 608.

S. falcatus. Raf. Med. Bot. 2. 261.

S. Drummondii. Hook. & Arn. Bot. Beechey, 281, excl. var. Walp. Rep. 1. 417.

SERJANIA incisa. Torrey, Mex. Bound. 47.

S. racemosa. Schum. Act. Soc. Nat. Hafn. 3. 127, t. **12**, f. **3**. DC. Prodr. 1. 603. Benth. Pl. Hartw. 15. Gray, Pl. Wright. 1. 38.

STAPHYLEA Bolanderi. Gray, Proc. Am. Acad. 10. 69.

S. trifolia. Linn. Spec. 270. Marsh. Arbust. 148. Walter, 117. Ait. Hort. Kew. 1. 375. Schmidt, Arb. t. **81**. Willd. Spec. 1. 1498; Enum. 329. Michx. Fl. 1. 184. Persoon, 1. 329. Poir. Dict. 7. 393. Pursh, 206. Nutt. Genera, 1. 204. Röm. & Schult. Syst. 6. 668. Elliott, 1. 369. Bigel. Fl. Bost. 121. Torrey, Fl. U. S. 325; Fl. N. Y. 1. 139, t. **19**; Nicol. Rep. 147. DC. Prodr. 2. 2. Spreng. Syst. 1. 944. Hook. Fl. Bor.-Am. 1. 119. Don, Mill. 2. 2. Beck, Bot. 73. Spach, Hist. Veg. 2. 396. Darling. Fl. Cestr. 209. Torr. & Gray, Fl. 1. 256. Dietr. 2. 1002. Eat. & Wr. 442. Loud. Arbor. 1. 493, f. **161, 162**. Emerson, Mass. Trees, 477. Gray, Pl. Fendl. 29; Genera, 2. 192, t. **172**; Pac. R. Rep. 12. 41; Manual, 117. Richard. Arct. Exped. 423. Engelm. Pl. Upp. Miss. 187. Curtis, Bot. N. Car. 107. Chapman, 78.

Staphylodendrum trifoliatum. Moench, Meth. 64.

UNGNADIA speciosa. Endl. Atakt. Bot. t. **36**; Nov. Stirp. Dec. 9. 75. Torr. & Gray, Fl. 1. 684; Pac. R. Rep. 2. 162. Walp. Rep. 5. 371. Gray, Pl. Lindh. 167; Genera, 2. 211, t. **178, 179**; Pl. Wright. 1. 38 & 2. 30; Pl. Thurb. 299; Hall's Pl. Tex. 5. Fl. Serres, 10. 217, t. **1059**. Torrey, Mex. Bound. 48. Schnizl. Icon. t. **230**, f. **2, 8**. Baill. Hist. Pl. 5. 423.

U. heterophylla. Scheele, Linn. 21. 589.

U. heptaphylla. Scheele, Linn. 22. 352; Röm. Texas, 432.

URVILLEA Mexicana. Gray, Pl. Wright. 1. 38. Walp. Ann. 4. 376. Torrey, Mex. Bound. 48.

ANACARDIACEÆ.

PISTACIA Mexicana. HBK. Nov. Gen. 7. 22, t. **608**. DC. Prodr. 2. 64. Gray, Pl. Wright. 2. 27. Torrey, Mex. Bound. 44.

RHUS aromatica. Ait. Hort. Kew. 1. 367. Willd. Spec. 1. 1482. Michx. Fl. 1. 184. Persoon, 1. 325. Turpin, Ann. Mus. 5. 445, t. **30**. Nouv. Duham. 2. 170. Poir. Dict. 7. 511. Pursh, 205. Nutt. Genera, 1. 203. Röm. & Schult. Syst. 6. 652. Elliott, 1. 364. Torrey, Fl. U. S. 324; Fl. N. Y. 1. 131; Emory's Rep. 407. DC. Prodr. 2. 73. Spreng. Syst. 1. 938. Hook. Fl. Bor.-Am. 1. 127. Don, Mill. 2. 75. Beck, Bot. 75. Spach, Hist. Veg. 2. 222. Torr. & Gray, Fl. 1. 219 & 681. Dietr. 2. 1006. Eat. & Wr. 392. Nees, Pl. Wied, 5. Loud. Arbor. 2. 557. Emerson, Mass. Trees, 507. Gray, Genera, 2. 160, t. **160**; Pac. R. Rep. 12. 41; Manual, 112. Richard. Arct. Exped. 424. Parry, Pl. Minn. 610. Engelm. Pl. Upp. Miss. 187. Chapman, 69.

R. Canadensis. Marsh. Arbust. 129.

R. suaveolens. Ait. Hort. Kew. 1. 368. Willd. Spec. 1. 1482; Enum. 324. Persoon, 1. 325. Nouv. Duham. 2. 170. Poir. Dict. 7. 512. DC. Prodr. 2. 72. Spreng. Syst. 1. 938. Don, Mill. 2. 75. Spach, Hist. Veg. 2. 222. Dietr. 2. 1006. Loud. Arbor. 2. 557.

Betula triphylla. Thunberg, Diss. Betul. 12, t. **2**; fide Swartz, Adnot. Bot. 25.

Turpinia pubescens & glabra. Raf. Med. Rep. 5. 354. Desv. Journ. Bot. 2. 170.

Var. trilobata. Gray, Am. Journ. Sci. 2. 33. 408. Watson, King's Rep. 5. 53; Pl. Wheel. 7. Porter, Hayd. Rep. 1871, 480; Fl. Col. 19. Brew. & Wats. Bot. Calif. 1. 110.

R. trilobata. Nutt.; Torr. & Gray, Fl. 1. 219; Pac. R. Rep. 2. 162. Eat. & Wr. 392. Walp. Rep. 1. 554. Torrey, Nicol. Rep. 147; Frem. Rep. 88; Marcy's Rep. 282; Sitgr. Rep. 157; Pac. R. Rep. 4. 73 & 7. 9; Mex. Bound. 44; Bot. Wilkes, 257. Gray, Pl. Lindh. 159; Pl. Fendl. 28; Pl. Wright. 1. 31 & 2. 27; Ives's Rep. 9; Hall's Pl. Tex. 5. Engelm. in Wisliz. Rep. 4; Pl. Upp. Miss. 187. Durand, Fl. Utah, 160.

R. copallina. Linn. Spec. 266. Medicus, Bot. Beob. 1782, 224. Marsh. Arbust. 128. Walter, 255. Gaertn. Fruct. 1. 205, t. 44. Ait. Hort. Kew. 1. 366. Plenck, Icon. t. 233. Lam. Ill. 2. 346, t. 207, f. 3. Jacq. Hort. Schönb. 3. 50, t. 341. Willd. Spec. 1. 1480; Enum. 324. Michx. Fl. 1. 182. Nouv. Duham. 2. 160. Persoon, 1. 324. Poir. Dict. 7. 506. Pursh, 205. Bigel. Fl. Bost. 119. Röm. & Schult. Syst. 6. 647. Elliott, 1. 362. James, Long's Exped. 1. 317. Torrey, Fl. U. S. 323; Fl. N. Y. 1. 129. DC. Prodr. 2. 68. Spreng. Syst. 1. 936. Don, Mill. 2. 72. Beck, Bot. 75. Hook. Jour. Bot. 1. 202. Spach, Hist. Veg. 2. 214. Darling. Fl. Cestr. 206. Torr. & Gray, Fl. 1. 217. Eat. & Wr. 392. Dietr. 2. 1003. Loud. Arbor. 2. 554. Emerson, Mass. Trees, 503. Gray, Pl. Fendl. 28; Manual, 111; Hall's Pl. Tex. 5. Scheele, Röm. Texas, 431. Engelm. Pl. Upp. Miss. 187. Curtis, Bot. N. Car. 92. Chapman, 69.

Var. **leucantha.** DC. Prodr. 2. 68. Engelm. & Gray, Pl. Lindh. 58.

R. leucantha. Jacq. Hort. Schönb. 3. 50, t. 342. Spach, Hist. Veg. 2. 215.

Var. **lanceolata.** Gray, Pl. Lindh. 158. Torrey, Mex. Bound. 44.

R. cotinoides. Nutt.; Chapman, 70. Wood, Cl.-Book, 285; Bot. & Fl. 73.

R. Cotinus (?). Torr. & Gray, Fl. 1. 216. Wood, Cl.-Book, 285.

Cotinus Americanus. Nutt. Sylva, 3. 1, t. 81.

R. diversiloba. Torr. & Gray, Fl. 1. 218. Eat. & Wr. 392. Walp. Rep. 1. & 5. 414. Lindl. Bot. Reg. 31, t. 38. Benth. Pl. Hartw. 303. Torrey, Pac. R. Rep. 4. 73; Mex. Bound. 44. Newberry, Pac. R. Rep. 6. 69. Cooper, same, 12. Turcz. Bull. Soc. Mosc. 31¹. 470. Gray, Proc. Bost. Soc. Nat. Hist. 7. 146; Pl. Am. Acad. 8. 379. Boland. Proc. Calif. Acad. 3. 78; Cat. 7. Anderson, Cat.

R. lobata. Hook. Fl. Bor.-Am. 1. 127, t. 46, not Poir. Hook. & Arn. Beechey, 137. Dietr. 2. 1006. Loud. Arbor. 2. 557.

R. glabra. Linn. Spec. 265. Medicus, Bot. Beob. 1782, 221. Marsh. Arbust. Walter, 255. Ait. Hort. Kew, 1. 365. Plenck, Icon. t. 237. Lam. Ill. 2. t. 207, f. 1. Moench, Meth. 72. Willd. Spec. 1. 1478; Enum. 323. Michx. 1. 182. Persoon, 1. 324. Nouv. Duham. 2. 164. Poir. Dict. 7. 503. Pursh, Bigel. Fl. Bost. 118. Röm. & Schult. Syst. 6. 645. Elliott, 1. 361. James, Long Exped. 1. 317. Torrey, Fl. U. S. 322; Fl. N. Y. 1. 129; Emory's Rep. 137 & 40. DC. Prodr. 2. 67. Spreng. Syst. 1. 936. Hook. Fl. Bor.-Am. 1. 126; Lond. Jour. Bot. 6. 76. Don, Mill. 2. 70. Beck, Bot. 75. Spach, Hist. Veg. 2. 213. Darlington, Fl. Cestr. 206. Torr. & Gray, Fl. 1. 217; Pac. R. Rep. 2. 162. Eat. & Wr. 392. Dietr. 2. 1002. Loud. Arbor. 2. 551, f. 225. Emerson, Mass. Trees, 502. Gray, Genera, 2. 160, t. 159; Manual, 111. Richard. Arct. Exped. 424. Parry, Pl. Minn. 610. Engelm. Pl. Upp. Miss. 187. Curtis, Bot. N. Car. 92. Lesqx. Fl. Ark. 353. Chapman, 69. Pl. Bourgeau, 255. Schnizl. Icon. t. 245, f. 9–19. Cooper, Am. Naturalist, 8. 405. Porter, Hayd. Rep. 1871, 480; Fl. Col. 19. Watson, King's Rep. 5. 52 & 419. Coulter, Hayd. Rep. 1872, 763.

? *R. Carolinense.* Marsh. Arbust. 129.

R. elegans. Ait. Hort. Kew. 1. 366. Willd. Spec. 1. 1478; Enum. 323. Nouv. Duham. 2. 164. Persoon, 1. 324. Poir. Dict. 7. 504. Elliott, 1. 361. Spach, Hist. Veg. 2. 218.

Var. **laciniata**. Carrière, Rev. Hort. 1863, 7 & fig.

Var. **occidentalis**. Torrey, Bot. Wilkes, 257. Gray, Pl. Fendl. 68.

R. integrifolia. Benth. & Hook. Genera, 1. 419. Watson, Pl. Wheel. 7.

Styphonia integrifolia. Nutt.; Torr. & Gray, Fl. 1. 220. Eat. & Wr. 444. Dietr. 2. 1226. Benth. Bot. Sulph. 11. Walp. Rep. 1. 555 & 5. 414. Nutt. Sylva, 3. 4, t. 82. Torrey, Pac. R. Rep. 4. 73 & 7. 9, t. 2; Mex. Bound. 44. Gray, Ives's Rep. 9.

S. serrata. Nutt.; Torr. & Gray, Fl. 1. 220. Eat. & Wr. 446. Dietr. 2. 1226. Walp. Rep. 5. 414. Nutt. Sylva, 3. 6.

R. laurina. Nutt.; Torr. & Gray, Fl. 1. 219. Eat. & Wr. 392. Benth. Bot. Sulph. 11. Torrey, Emory's Rep. 137.

Lithræa laurina. Walp. Rep. 1. 551; Ann. 2. 281. Torrey, Pac. R. Rep. 4. 73; Mex. Bound. 44, t. 7.

R. Metopium. Linn. Amœn. 5. 395. DC. Prodr. 2. 67. Nutt. Sylva, 2. 121, t. 80. Cooper, Smithson. Rep. 1860, 440. Chapman, 69. Griseb. Fl. Brit. W. Ind. 175 & syn. Wood, Bot. & Fl. 73.

R. microphylla. Engelm. in Gray, Pl. Wright. 1. 31. Gray, Pl. Wright. 2. 27; Pl. Thurb. 301. Torr. & Gray, Pac. R. Rep. 2. 162. Walp. Ann. 4. 447. Torrey, Mex. Bound. 44.

R. pumila. Michx. Fl. 1. 182. Nouv. Duham. 2. 163. Persoon, 1. 325. Poir. Dict. 7. 502. Pursh, 204. Elliott, 1. 361. DC. Prodr. 2. 67. Spreng. Syst. 1. 937. Don, Mill. 2. 70. Spach, Hist. Veg. 2. 214. Torr. & Gray, Fl. 1. 217. Eat. & Wr. 392. Dietr. 2. 1002. Loud. Arbor. 2. 552. Curtis, Bot. N. Car. 93. Chapman, 69. Wood, Cl.-Book. 284; Bot. & Fl. 73.

R. Toxicodendron. Linn. Spec. 266. Marsh. Arbust. 131. Walter, 255. Ait. Hort. Kew. 1. 367. Plenck, Icon. t. 235. Willd. Spec. 1. 1481. Nouv. Duham. 2. 167, t. 48. Poir. Dict. 7. 508. Elliott, 1. 363. James, Long's Exped. 2. 344. Torrey, Fl. U. S. 323; Ann. Lyc. N. Y. 2. 174; Fl. N. Y. 1. 130; Nicol. Rep. 147; Frem. Rep. 88; Emory's Rep. 137; Marcy's Rep. 282; Mex. Bound. 44; Bot. Wilkes, 257. DC. Prodr. 2. 69. Spreng. Syst. 1. 938. Hook. Fl. Bor.-Am. 1. 127; Woodville, Med. Bot. 5. 67 & t.; Jour. Bot. 1. 202; Lond. Jour. Bot. 6. 76. Don, Mill. 2. 72. Beck, Bot. 75. Spach, Hist. Veg. 2. 218. Lindl. Fl. Med. 285. Torr. & Gray, Fl. 1. 218. Eat. & Wr. 392. Dietr. 2. 1003. Nees, Pl. Wied, 5. Loud. Arbor. 2. 556, f. 231. Emerson, Mass. Trees, 506. Gray, Pl. Lindh. 159; Pl. Fendl. 28; Pac. R. Rep. 12. 41; Manual, 111; Hall's Pl. Tex. 5. Engelm. Wisliz. Rep. 4; Pl. Upp. Miss. 187. Richard. Arct. Exped. 424. Parry, Pl. Minn. 610. Curtis, Bot. N. Car. 93 & 118. Chapman, 69. Pl. Bourgeau, 255. Porter, Hayd. Rep. 1871, 480; Fl. Col. 19. Watson, King's Rep. 5. 33. Coulter, Hayd. Rep. 1872, 763; Bailey, Am. Naturalist, 7. 4, f. 1.

Toxicodendron pubescens, Mill. Moench, Meth. 73.

R. Toxicodendron, var. *quercifolium*. Michx. Fl. 1. 183. Pursh, 205. Röm. & Schult. Syst. 6. 652. Eat. & Wr. 392.

R. radicans, var. *Toxicodendron*. Persoon, 1. 325.

R. verrucosa. Scheele, Linn. 21. 592. Walp. Ann. 2. 282.

Var. **radicans**. Torrey, Fl. U. S. 324; Fl. N. Y. 1. 130. Torr. & Gray, Fl. 1. 218. Eat. & Wr. 392. Scheele, Röm. Texas, 432.

R. radicans. Linn. Spec. 266. Medicus, Bot. Beobacht. 1782, 225. Marsh. Arbust. 131. Walter, 255. Ait. Hort. Kew. 1. 367. Plenck, Icon. t. 236. Willd. Spec. 1. 1481; Enum. 324. Persoon, 1. 325. Poir. Dict. 7. 509. Bigel. Fl. Bost. 120; Med. Bot. 3. 19, t. 42. Nutt. Genera, 1. 203. Elliott, 1. 363. DC. Prodr. 2. 69. Hook. Fl. Bor.-Am. 1. 127. Don, Mill. 2. 72. Beck, Bot. 75. Spach, Hist.

Veg. 2. 217. Hook. & Arn. Bot. Beechey, 137 ? Loud. Arbor. 2. 555, f. 234. Torrey, Emory's Rep. 407.

Toxicodendron vulgare, Mill. Moench, Meth. 73.

Rhus Toxicodendron, var. *a. vulgare*. Michx. Fl. 1. 183. Pursh, 205. Sims, Bot. Mag. t. **1806**. Röm. & Schult. Syst. 6. 651.

Var. **microcarpon**. Michx. Fl. 1. 183. Torr. & Gray, Fl. 1. 218.

Var. **pubens**. Engelm.; Gray, Pl. Lindh. 159.

† **R. typhina**. Linn. Amœn. 4. 311. Medicus, Bot. Beobacht. 1782, 228. Marsh. Arbust 129. Walter, 255. Ait. Hort. Kew. 1. 365. Ehrh. Beitr. 6. 89. Moench, Meth. 72. Willd. Spec. 1. 1478; Enum. 323. Michx. Fl. 1. 182. Nouv. Duham. 2. 164, t. **47**. Persoon, 1. 324. Poir. Dict. 7. 503. Pursh, 204. Bigel. Fl. Bost. 118. Röm. & Schult. Syst. 6. 643. Elliott, 1. 360. Torrey, Fl. U. S. 322; Fl. N. Y. 1. 128. DC. Prodr. 2. 67. Spreng. Syst. 1. 936. Hook. Fl. Bor.-Am. 1. 126. Don, Mill. 2. 70. Beck, Bot. 76. Spach, Hist. Veg. 2. 212. Darling. Fl. Cestr. 205. Bennet, Pl. Jav. Rar. 80. Torr. & Gray, Fl. 1. 217 & 680. Eat. & Wr. 392. Dietr. 2. 1002. Loud. Arbor. 2. 550, f. **224**. Emerson, Mass. Trees, 501. Richard. Arct. Exped. 424. Curtis, Bot. N. Car. 93. Chapman, 69. Lesqx. Fl. Ark. 353. Gray, Manual, 111.

Datisca hirta. Linn. Spec. 1037. Don, Mill. 1. 290.

R. hypselodendron. Moench, Meth. 73.

R. Canadense, Mill. Nouv. Duham. 2. 163.

R. viridiflora. Nouv. Duham. 2. 163. Poir. Dict. 7. 504. DC. Prodr. 2. 67. Don, Mill. 2. 70. Dietr. 2. 1002. Loud. Arbor. 2. 551.

R. venenata. DC. Prodr. 2. 68. Hook. Fl. Bor.-Am. 1. 126. Don, Mill. 2. 71. Beck, Bot. 76. Spach, Hist. Veg. 2. 215. Darling. Fl. Cestr. 207. Lindl. Fl. Med. 284. Torr. & Gray, Fl. 1. 218 & 681. Eat. & Wr. 392. Dietr. 2. 1003. Torrey, Fl. N. Y. 1. 130. Loud. Arbor. 2. 552, f. **226**. Emerson, Mass. Trees, 504. Richard. Arct. Exped. 424. Curtis, Bot. N. Car. 93. Chapman, 69. Gray, Manual, 111. Bailey, Am. Naturalist, 7. 5, f. **3**.

R. Vernix. Linn. Spec. 265, in part. Medicus, Bot. Beobacht. 1782, 223. Marsh. Arbust. 130. Ait. Hort. Kew. 1. 366. Plenck, Icon. t. **234**. Lam. Ill. 2. 346, t. **207**, f. **2**. Willd. Spec. 1. 1479; Enum. 323. Michx. Fl. 1. 183. Nouv. Duham. 2. 165. Persoon, 1. 324. Poir. Dict. 7. 505. Pursh, 205. Bigel. Fl. Bost. 110; Med. Bot. 1. 96, t. **10**. Röm. & Schult. Syst. 6. 646. Elliott, 1. 362. Torrey, Fl. U. S. 323. Spreng. Syst. 1. 936. Hook. Jour. Bot. 1. 202.

R. virens. Lindh.; Gray, Pl. Lindh. 159; Pl. Wright. 1. 31 & 2. 27; Hall's Pl. Tex. 5. Walp. Ann. 2. 282. Torrey, Mex. Bound. 44. Young, Fl. Texas, 198.

? *R. Schiedeana*. Schlecht. in Linn. 16. 480.

R. Canadensis; aromatica, typhina.
Carolinense; glabra.
Cotinus; cotinoides.
elegans; glabra.
hypselodendron; typhina.
leucantha; copallina.
lobata; diversiloba.
R. radicans; Toxicodendron.
Schiedeana; virens.
suaveolens & trilobata; aromatica.
Vernix; venenata.
verrucosa; Toxicodendron.
viridiflora; typhina.

SCHINUS (?) **discolor**. Benth. Bot. Sulph. 11, t. **9**. Walp. Rep. 5. 413. (Lower California.)

S. Molle. Linn. Spec. 388. DC. Prodr. 2. 74. Hook. Bot. Mag. t. **3339**, with syn. Torrey, Mex. Bound. 44.

LEGUMINOSÆ.

ACACIA amentacea. DC. Prodr. 2. 455; Fl. Mex. Icon. ined. t. **208**. Gray, Pl. Lindh. 185. Benth. Rev. Mim. in Trans. Linn. Soc. 30. 514.

A. rigidula. Benth. in Lond. Journ. Bot. 1. 504. Walp. Rep. 1. 913. Dietr. 4. 497. Gray, Pl. Wright. 1. 65. Torrey, Mex. Bound. 61.

Hoopesia arborea. Buckley, in part. See under *A. flexicaulis.*

A. Berlandieri. Benth. in Lond. Journ. Bot. 1. 522; Rev. Mim. 529. Walp. Rep. 1. 919. Dietr. 4. 500.

A. tephroloba. Gray, Pl. Wright. 1. 65 & 2. 54. Walp. Ann. 4. 625. Torrey, Mex. Bound. 61.

A. constricta. Benth. in Gray, Pl. Wright. 1. 66; Rev. Mim. 513. Gray, Pl. Wright. 1. 66 & 2. 54. Walp. Ann. 4. 626. Torrey, Pac. R. Rep. 7. 10; Mex. Bound. 62.

A. crassifolia. Gray, Pl. Thurb. 317. Walp. Ann. 4. 626. Torrey, Mex. Bound. 62. Benth. in Hook. f. Icon. t. **1166**; Rev. Mim. 525. (Chihuahua.)

A. Emoryana. Benth. Rev. Mim. 522.

A. Coulteri. Benth. in Gray, Pl. Wright. 1. 66, in part. Walp. Ann. 4. 626. Gray, Pl. Wright. 2. 53. Torrey, Mex. Bound. 62.

A. Farnesiana. Willd. Spec. 4. 1083. See syn. in Benth. Lond. Journ. Bot. 1. 494, & Rev. Mim. 502. — DC. Prodr. 2. 461. Hook. Comp. Bot. Mag. 1. 24. Eat. & Wr. 111. Engelm. & Gray, Pl. Lindh. 8 & 31. Seem. Bot. Herald, 282. Gray, Pl. Wright. 1. 67; Proc. Am. Acad. 5. 158; Hall's Pl. Texas, 8. Griseb. Fl. Brit. W. Ind. 222. Torrey, Mex. Bound. 62. Wood, Bot. & Fl. 90. Brew. & Wats. Bot. Calif. 1. 104.

Vachellia Farnesiana, Wight & Arn. Torr. & Gray, Fl. 1. 405 & 695.

A. Cavenia. Benth. in Gray, Pl. Wright. 1. 67; not of Hook. & Arn. in Bot. Beechey, 21.

A. filicina. Willd. Spec. 4. 1072. See syn. in Benth. Rev. Mim. 532. — DC. Prodr. 2. 468. Benth. Pl. Hartw. 13; Lond. Journ. Bot. 1. 524. Walp. Rep. 1. 920.

Mimosa filicioides. Cav. Icon. 1. 55, t. **78.**

A. umbellifera. Kunth, Mim. 100, t. **31.**

A. ——, n. sp. Nutt.; Torrey, Ann. Lyc. N. Y. 2. 191.

A. glabrata, elegans, hirsuta & stipellata. Schlecht. in Linnæa, 12. 569–574. Walp. Rep. 1. 924.

A. cuspidata. Schlecht. in Linnæa, 12. 573. Walp. Rep. 1. 920. Benth. in Lond. Journ. Bot. 1. 525. Gray, Pl. Wright. 1. 66 & 2. 54. Torrey, Pac. R. Rep. 7. 10; Mex. Bound. 62. Watson, Pl. Wheeler, 8.

A. hirta. Nutt.; Torr. & Gray, Fl. 1. 404; Pac. R. Rep. 2. 164. Walp. Rep. 1. 920. Benth. in Lond. Journ. Bot. 1. 525. Engelm & Gray, Pl. Lindh. 8 & 31. Dietr. 4. 501. Gray, Pl. Wright. 1. 66; Hall's Pl. Texas, 8.

A. Texensis. Torr. & Gray, Fl. 1. 404; Pac. R. Rep. 2. 164. Walp. Rep. 1. 920. Benth. in Lond. Journ. Bot. 526. Dietr. 4. 501.

A. flexicaulis. Benth. in Lond. Journ. Bot. 1. 505; Rev. Mim. 514. Walp. Rep. 1. 913. Dietr. 4. 497. Gray, Pl. Wright. 1. 65; Proc. Am. Acad. 5. 158. Torrey, Mex. Bound. 62.

Hoopesia arborea. Buckley, Proc. Acad. Philad. 1861, 453, & 1870, 137, in part; fide Gray, same, 1862, 163. Walp. Ann. 7. 812. Young, Fl. Texas, 245.

A. Greggii. Gray, Pl. Wright. 1. 65; Ives's Rep. 11. Torrey, Sitgr. Rep. 1 58; Pac. R. Rep. 7. 10; Mex. Bound. 61. Walp. Ann. 4. 625. Benth. Rev. Mim. 521. Brew. & Wats. Bot. Calif. 1. 164.

A. Durandiana. Buckl. Proc. Acad. Phil. 1861, 453; fide Gray, same, 1862, 163.

A. malacophylla. Benth. in Gray, Pl. Wright. 1. 64; Rev. Mim. 526. Walp. Ann. 4. 625.

A. Rœmeriana. Schlecht. in Linnæa, 21. 456. Gray, Pl. Lindh. 184; Pl. Wright. 1. 65 & 2. 54. Walp. Ann. 2. 456. Torr. Mex. Bound. 61. Benth. Rev. Mim. 526.

A. Schottii. Torrey, Mex. Bound. 62. Walp. Ann. 7. 837. Benth. l. c. 513.

A. tortuosa. Willd. Spec. 4. 1083. DC. Prodr. 2. 461. Benth. in Lond. Jour. Bot. 1. 392; Rev. Mim. 501, with syn. Griseb. Fl. Brit. W. Ind. 222. Gray, in Torrey, Mex. Bound. 62.

A. albida. Lindl. Bot. Reg. **t. 1317.**

A. Wrightii. Benth. in Gray, Pl. Wright. 1. 64; Rev. Mim. 521. Gray, Pl. Wright. 2. 53. Walp. Ann. 4. 626. Torrey, Mex. Bound. 61. Brew. & Wats. Bot. Calif. 1. 164.

A. albida; tortuosa.
brachyloba; Desmanthus brachylobus.
Cavenia; Farnesiana.
Cooleyi; Desmanthus Jamesii.
Coulteri; Emoryana.
cuspidata; filicina.
Durandiana; Greggii.
elegans & *glabrata;* filicina.
glandulosa; Desmanthus brachylobus.
hirsuta & *hirta;* filicina.
humilis; Calliandra humilis.
A. Julibrissin; Albizzia Julibrissin.
latisiliqua; Lysiloma latisiliqua.
lutea; Neptunia lutea.
Nueciana; Pithecolobium brevifolium.
rigidula; amentacea.
Sabeana; Leucæna retusa.
stipellata; filicina.
tephroloba; Berlandieri.
Texensis & *umbellifera;* filicina.
—— ?; filicina.

ÆSCHYNOMENE hispida. Willd. Spec. 3. 1163. Persoon, 2. 316. Ait. f. Hort. Kew, 4. 337. Pursh, 485. Poir. Suppl. 4. 75. Nutt. Genera, 2. 111. Barton, Fl. N. Am. 1. 102, **t. 29.** Elliott, 2. 220. DC. Prodr. 2. 321. Spreng. Syst. 3. 322. Torrey, Compend. 270. Don, Mill. 2. 284. Beck, Bot. 83. Torr. & Gray, Fl. 1. 356. Eat. & Wr. 115. Dietr. 4. 1136. Benth. in Mart. Fl. Bras. 15¹. 59. Lesqx. Fl. Ark. 356. Chapman, 99. Gray, Manual, 134.

Hedysarum Virginicum. Linn. Spec. 750. Hill, Veg. Syst. 21, **t. 42, f. 3** & **t. 43, f. 4.** Willd. Spec. 3. 1212. Poir. Dict. 6. 449. Persoon, 2. 324. Spreng. Syst. 3. 321.

? *Æ. glaberrima.* Poir. Suppl. 4. 76. DC. Prodr. 2. 320. Spreng. Syst. 3. 322. Don, Mill. 2. 284. Eat. & Wr. 115. Dietr. 4. 1135.

Æ. ciliata. Vogel, Linnæa, 12. 84.

Æ. viscidula. Michx. Fl. 2. 74. Persoon, 2. 316. Pursh, 485. Nutt. Genera, 2. 111. Elliott, 2. 220. DC. Prodr. 2. 322. Spreng. Syst. 3. 322. Don, Mill. 2. 285. Torr. & Gray, Fl. 1. 356. Eat. & Wr. 115. Dietr. 4. 1136. Benth. in Mart. Fl. Bras. 15¹. 68. Chapman, 99. Wood, Bot. & Fl. 87.

Æ. prostrata. Poir. Suppl. 4. 76.

ALBIZZIA Julibrissin, Durazz. Müller, Trim. Journ. Bot. 1872, 7. Benth. Rev. Mim. in Trans. Linn. Soc. 30. 568. Wood, Bot. & Fl. 82. Gray, Hall's Pl. Texas, 9.

Acacia Julibrissin, Willd. Torr. & Gray, Fl. 1. 404.

AMORPHA Californica. Nutt.; Torr. & Gray, Fl. 1. 306. Hook. & Arn. Bot. Beechey, 333. Eat. & Wr. 123. Walp. Rep. 1. 655. Dietr. 4. 1020. Schlecht. in Linnæa, 24. 688. Brew. & Wats. Bot. Calif. 1. 140.

A. fruticosa. Torrey, Mex. Bound. 53.

A. canescens. Nutt. in Fras. Cat. 1813; Genera, 2. 92. Pursh, 467. Bradbury, Cat. 337. James, Long's Exped. 2. 336. DC. Prodr. 2. 256. Spreng. Syst. 3. 326. Torrey, Ann. Lyc. N. Y. 2. 178; Nicol. Rep. 148; Frem. Rep. 88; Emory's Rep. 408; Marcy's Rep. 284; Pac. R. Rep. 4. 78. Hook. Fl. Bor.-Am. 1. 139. Don, Mill. 2. 234. Spach, Hist. Veg. 1. 256. Torr. & Gray, Fl. 1. 306; Pac. R. Rep. 2. 126. Eat. & Wr. 122. Loud. Arbor. 2. 608. Dietr. 4. 1020. Gray, Pl. Fendl. 31; Pac. R. Rep. 12. 42; Manual, 130. Parry, Pl. Minn. 611. Richard. Arct. Exped. 424. Engelm. Pl. Upp. Miss. 188. Chapman, 94. Pl. Bourgeau, 255. Porter, Fl. Col. 23.

Var. **leptostachya.** Engelm.; Gray, Pl. Fendl. 31.

Var. **glabrata.** Gray, Pl. Wright. 1. 49.

A. fruticosa. Linn. Spec. 713. Medicus, Bot. Beobacht. 1782, 168. Lam. Dict. 1. 137; Ill. 3. 179, **t. 621.** Marshall, Arbust. 6. Walter, 179. Gaertn. Fruct. **t. 144.** Ait. Hort. Kew. 3. 17. Schkuhr, Handb. 2. 332, **t. 197.** Moench, Meth. 513. Willd. Arb. 16; Spec. 3. 970; Enum. 747. Michx. Fl. 2. 64. Nouv. Duham. 3. 150, **t. 36.** Persoon, 2. 294. Poir. Suppl. 1. 330. Pursh, 466. Bradbury, Cat. 337. Nutt. Genera, 2. 91. Ker, Bot. Reg. 5, **t. 427.** James, Long's Exped. 1. 314 & 2. 101. Elliott, 2. 188. DC. Prodr. 2. 256. Spreng. Syst. 3. 326. Torrey, Ann. Lyc. N. Y. 2. 178; Nicol. Rep. 148; Frem. Rep. 88; Sitgr. Rep. 158; Emory's Rep. 138; Pac. R. Rep. 7. 9. Hook. Fl. Bor.-Am. 1. 139; Comp. Bot. Mag. 1. 22. Don, Mill. 2. 234. Beck, Bot. 82. Spach, Hist. Veg. 1. 254. Torr. & Gray, Fl. 1. 350 & 690. Eat. & Wr. 122. Loud. Arbor. 2. 607, excl. fig. Dietr. 4. 1019. Richard. Arct. Exped. 424. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 188. Gray, Pac. R. Rep. 12. 42; Manual, 130. Curtis, Bot. N. Car. 104. Chapman, 93. Pl. Bourgeau, 255. Baillon, Hist. Pl. 2. 214, **f. 166, 167.** Porter, Fl. Col. 23. The distribution of the synonymy under this species is to some extent uncertain.

A. perforata & nonperforata. Schkuhr, Handb. 2. 333.

A. elata & fruticosa. Hayne, Dendr. Fl. 134 (Schlecht. in Linnæa, 24. 687 & 688).

? *A. humilis.* Tausch, Diar. Ratisb. 22 2. 750 (Schlecht. l. c. 689).

A. pubescens. Schlecht. l. c. 691, not Willd.

Var. emarginata. Pursh, 466. Torrey, Compend. 262. Loud. Arbor. 2. 607.

Var. (?) angustifolia. Pursh, 466. Loud. Arbor. 2. 607.

A. nana. Nutt. Fras. Cat. 1813, not Genera. Sims, Bot. Mag. **t. 2112.** Spreng. Syst. 3. 326.

? *A. croceo-lanata.* Watson, Dendr. Brit. **t. 139.** Don, Mill. 2. 234. Spach, Hist. Veg. 1. 254. Loud. Arbor. 2. 608, **f. 304.** Dietr. 4. 1020.

A. fragrans. Sweet, Brit. Fl. Gard. **t. 241.** Don, Mill. 2. 234. Spach, Hist. Veg. 1. 255. Loud. Arbor. 2. 608, **f. 303.** Schlecht. in Linnæa, 24. 692. Walp. Ann. 4. 485.

A. Lewisii & ? cærulea. Lodd. Cat. 1830.

A. fruticosa, vars. *Lewisii & cærulea.* Loud. Arbor. 2. 607

A. fruticosa, var. Torr. & Gray, Fl. 1. 690; Pac. R. Rep. 2. 162. Gray, Pl. Fendl. 31; Pl. Lindh. 174; Pl. Wright. 1. 49; Hall, Pl. Texas, 7.

A. glabra. Engelm. & Gray, Pl. Lindh. 7.

A. pumila & herbacea. Schlecht. in Ind. Sem. Hal. 1848, 8 (Linnæa, 24. 185; Ann. Sci. Nat. 3. 11. 248).

Var. (?) **Caroliniana.**

A. glabra. Desv. Cat. h. Par. 192. Persoon, 2. 295. Poir. Suppl. 1. 330. DC. Prodr. 2. 256. Don, Mill. 2. 234. Spach, Hist. Veg. 1. 255. Torr. & Gray, Fl. 1. 290. Eat. & Wr. 122. Loud. Arbor. 2. 607.

A. Caroliniana. Croom, Am. Journ. Sci. 1. 25. 74; Cat. Pl. Newbern, 43. Torr. & Gray, Fl. 1. 305. Eat. & Wr. 122. Walp. Rep. 1. 655. Dietr. 4. 1019.

A. cynostachya. Curtis, Journ. Bost. Soc. Nat. Hist. 1. 140.

A. Tennessensis. Shuttlw.; Ind. Sem. Lips. 1848, 1 (Linnæa, 24. 191). Walp. Ann. 2. 360.

A. herbacea. Walter, 179. Nutt. Genera, 2. 91. DC. Prodr. 2. 256. Sprengel Syst. 3. 326. Don, Mill. 2. 234. Torr. & Gray, Fl. 1. 306. Dietr. 4. 1019. Gray Pl. Wright. 1. 49. Curtis, Bot. N. Car. 104. Chapman, 94. Wood, Bot. & Fl. 93.

A. pubescens. Willd. Arb. 17; Spec. 3. 970; Enum. 747. Nouv. Duham. 3. t. 5 Persoon, 2. 294. Ait. f. Hort. Kew. 4. 265. Pursh, 407. Lodd. Bot. Cab. t. 6 Hayne, Dendr. Fl. 134 (Schlecht. in Linnæa, 24. 687). Elliott, 2. 189. Spach, Hist. Veg. 1. 255. Eat. & Wr. 122.

A. pumila. Michx. Fl. 2. 64. Poir. Suppl. 1. 330.

A. lævigata. Nutt.; Torr. & Gray, Fl. 1. 306. Eat. & Wr. 123. Walp. Rep. 1. 655. Dietr. 4. 1020. Gray, Hall's Pl. Texas, 7.

A. fruticosa, var. (†). Gray, Pl. Lindh. 174.

A. Texana. Buckley, Proc. Acad. Phil. 1861, 452; fide Gray, same, 1862, 162.

A. microphylla. Pursh, 466. Poir. Suppl. 5. 548. Bradbury, Cat. 337.

A. nana. Nutt. Genera, 2. 91, not Fras. Cat. DC. Prodr. 2. 256. Hook. Fl. Bor.-Am. 1. 139. Don, Mill. 2. 234. Torr. & Gray, Fl. 1. 306 & 690. Eat. & Wr. 122. Nees, Pl. Wied, 7. Torrey, Nicol. Rep. 148. Loud. Arbor. 2. 607, f. 302. Dietr. 4. 1019. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 188. Cooper, Pac. R. Rep. 12. 42. Pl. Bourgeau, 255.

A. paniculata. Torr. & Gray, Fl. 1. 306. Eat. & Wr. 123. Walp. Rep. 1. 655. Engelm. & Gray, Pl. Lindh. 7. Dietr. 4. 1020. Gray, Pl. Wright. 1. 49; Hall's Pl. Texas, 7. Young, Fl. Texas, 223.

A. Rœmeriana. Scheele, Linnæa, 21. 461. Walp. Ann. 2. 360.

A. lævigata, var. *pubescens.* Gray, Pl. Wright. 1. 49. Torrey, Mex. Bound. 53.

A. cærulea, Caroliniana, croceo-lanata & *cynostachya*; fruticosa.
elata & *fragrans*; fruticosa.
fruticosa; Californica, lævigata.
glabra, herbacea & *humilis*; fruticosa.
lævigata; paniculata.
Lewisii; fruticosa.
A. nana; fruticosa, microphylla.
nonperforata & *perforata*; fruticosa.
pubescens & *pumila*; fruticosa, herbacea.
Rœmeriana; paniculata.
Tennessensis; fruticosa.
Texensis; lævigata.

AMPHICARPÆA monoica. Elliott, Journ. Acad. Philad. 1. 373; Sketch, 2. 232. Nutt. Genera, 2. 113. DC. Mem. Legum. 360; Prodr. 2. 383. Torrey, Compend. 270; Fl. N. Y. 1. 164; Frem. Rep. 88; Pac. R. Rep. 4. 77. Hook. Fl. Bor.-Am. 1. 161; Comp. Bot. Mag. 1. 23. Don, Mill. 2. 343. Beck, Bot. 91. Darling. Fl. Cestr. 427. Torr. & Gray, Fl. 1. 292. Dietr. 4. 1165. Gray, Pl. Fendl. 31; Pac. R. Rep. 12. 41; Manual, 142. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 188. Chapman, 107. Walp. Ann. 7. 780.

Glycine comosa. Linn. Spec. 754. Hill, Veg. Syst. 21, **t. 6, f. 1.** Lam. Dict. 2. 736. Willd. Spec. 3. 1058. Persoon, 2. 300. Pursh, 486.

Glycine bracteata. Linn. Spec. 754. Pursh, 485.

Glycine monoica. Linn. Spec. 2 ed. 1023. Hill, Veg. Syst. 21, **t. 5, f. 2.** Lam. Dict. 2. 736. Ait. Hort. Kew. 3. 34. Schkuhr in Usteri's Annal. 12. 20, **t. 2.** Wendl. in Roem. Arch. 1. 3, **t. 103, f. 2.** Willd. Spec. 3. 1055. Michx. Fl. 2. 64. Persoon, 2. 299. Pursh, 485. Bigel. Fl. Bost. 173.

Anonymos Caroliniensis. Walter, 188.

Fulcata Caroliniana. Gmelin, Syst. 2. 1131.

Glycine sarmentosa. Roth, Catalect. 2. 87. Willd. Spec. 3. 1055. Persoon, 2. 299. Poir. Suppl. 2. 797. Ait. f. Hort. Kew. 4. 296. Pursh, 485.

Glycine heterocarpa. Hegetschw. Comm. 5, **t. 5.**

? *Glycine filosa.* Hornem. Cat. Hort. Hafn. 2. 682.

Glycine elliptica. Smith, Abbot's Hist. Nat. Georg. **t. 21** (Roem. Archiv. 2. 402).

Amphicarpæa sarmentosa. Nutt. Genera, 2. 114. Elliott, 2. 233. DC. Prodr. 2. 383. Don, Mill. 2. 343.

Cryptolobus Americanus & sarmentosus. Spreng. Syst. 3. 218.

Amphicarpa comosa. Riddell, Syn. Fl. W. States, 26.

Phaseolus monoicus. Eat. & Wr. 353.

A. Pitcheri. Torr. & Gray, Fl. 1. 292. Walp. Rep. 1. 750. Dietr. 4. 1165. Wood, Bot. & Fl. 97.

Phaseolus Pitcheri. Eat. & Wr. 353.

APIOS tuberosa. Moench, Meth. 165. Pursh, 473. Nutt. Genera, 2. 113. James, Long's Exped. 1. 135. Elliott, 2. 232. DC. Prodr. 2. 390. Spreng. Syst. 3. 310. Torrey, Compend. 270; Fl. N. Y. 1. 162; Frem. Rep. 88. Hook. Fl. Bor.-Am. 1. 161; Comp. Bot. Mag. 1. 24. Don, Mill. 2. 349. Beck, Bot. 91. Spach, Hist. Veg. 1. 322. Torr. & Gray, Fl. 1. 282. Gray, Pl. Lindh. 170; Pl. Fendl. 30; Manual, 140. Dietr. 4. 1203. Lindl. in Journ. Hort. Soc. Lond. 2. 144, **fig.** (Fl. Serres, 5. 425, **fig.**). Parry, Pl. Minn. 610. Engelm. Pl. Upp. Miss. 188. Lesqx. Fl. Ark. 357. Chapman, 105. Lemaire, Ill. Hort. 13, Misc. 42.

Glycine Apios. Linn. Spec. 753. Hill, Veg. Syst. 21, **t. 7, f. 1.** Lam. Dict. 2. 738. Walter, 186. Ait. Hort. Kew. 3. 35. Willd. Spec. 3. 1067; Enum. 757. Michx. Fl. 2. 63. Persoon, 2. 301. Schkuhr, Handb. **t. 198.** Sims, Bot. Mag. **t. 1198.** Bigel. Fl. Bost. 173. Elliott, Journ. Acad. Philad. 1. 325. Darling. Fl. Cestr. 428.

Phaseolus tuberosus. Eat. & Wr. 354.

ASTRAGALUS aboriginum. Richard. in Frankl. Journ. Appx. 18. Spreng. Syst. 4². 288. Don, Mill. 2. 258. Dietr. 4. 1081. Gray, Proc. Am. Acad. 6. 203. Watson, King's Rep. 5. 70 & 438. Porter, Fl. Col. 25. Rothr. Pl. Wheeler, 36.

Phaca aboriginum. Hook. Fl. Bor.-Am. 1. 143, **t. 56.** Don, Mill. 2. 470. Torr. & Gray, Fl. 1. 346 & 694. Eat. & Wr. 349. Walp. Rep. 1. 686. Dietr. 4. 1063. Seem. Bot. Herald, 51. Hook. f. Journ. Linn. Soc. 1. 121 & 124; Arct. Pl. 289. Pl. Bourgeau, 255.

A. adsurgens. Pall. Astrag. 40, **t. 31.** See syn. in Ledeb. Fl. 1. 603; Bunge, Astrag. 2. 184. — DC. Prodr. 2. 287. Reichenb. Hort. Bot. **t. 217.** Hook. Fl. Bor.-Am. 1. 149. Don, Mill. 2. 258. Torr. & Gray, Fl. 1. 330; Pac. R. Rep. 2. 126. Eat. & Wr. 138. Torrey, Bot. Wilkes, 276. Engelm. Pl. Upp. Miss. 189. Gray, Pac. R. Rep. 12. 42; Proc. Am. Acad. 6. 197. Watson, King's Rep. 5. 68 & 439. Porter, Hayd. Rep. 1870, 475; Fl. Col. 23. Rothr. Pl. Wheeler, 36.

A. Laxmanni. Nutt. Genera, 2. 99; not Jacq., fide Bunge, l. c. 2. 84. James, Cat. 186; Long's Exped. 2. 333. Torrey, Ann. Lyc. N. Y. 2. 178. Don, Mill. 2. 258, in part. Eat. & Wr. 138.

A. striatus. Nutt.; Torr. & Gray, Fl. 1. 330. Walp. Rep. 1. 699. Dietr. 4. 1080. Engelm. Pl. Upp. Miss. 189. Gray, Proc. Acad. Philad. 1863, 60.

A. hypoglottis, var. *robustus.* Hook. in Lond. Journ. Bot. 6. 210.

A. alpinus. Linn. Spec. 760. See syn. in Ledeb. Fl. Ross. 1. 601; Bunge, Astrag. 2. 26; DC. Astrag. 64, & Trautv. Pl. Middend. 1. 49, under *Phaca.* — Pursh, 472. R. Br. in Parry's 1st Voy. 278. Meyer, Pl. Lab. 82. Eat. & Wr. 138. Hook. f. in Journ. Linn. Soc. 1. 121 & 124, & 5. 83; Arct. Pl. 289. Dickie, Journ. Linn. Soc. 3. 110. Gray, Am. Journ. Sci. 2. 33. 410; Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 205. Rothr. Fl. Alask. 445; Pl. Wheeler, 36. Matthew, Pl. Acad. 15. Watson, King's Rep. 5. 438. Porter, Hayd. Rep. 1871, 481; Fl. Col. 26. Coulter, Hayd. Rep. 1872, 764. Torrey, Bot. Wilkes, 276.

A. secundus. Michx. Fl. 1. 66, not DC. Pursh, 473. Spreng. Syst. 3. 30[illegible]. Eat. & Wr. 147.

Phaca astragalina. DC. Astrag. 64; Prodr. 2. 274. Lodd. Bot. Cab. t. 42[illegible]. Richard. in Frankl. Journ. 17. Spreng. Syst. 3. 292. Hook. Fl. Bor.-Am. 1. 14[illegible]. Schlecht. Fl. Lab. in Linnæa, 10. 99. Torr. & Gray, Fl. 1. 345. Hook. & Arn. Bot. Beechey, 122. Eat. & Wr. 351. Torrey, Frem. Rep. 89. Seem. Bot. Herald, 28[illegible]. 51. Pl. Bourgeau, 255.

Colutea astragalina. Poir. Suppl. 1. 561.

A. Labradoricus. DC. Prodr. 2. 287. Hook. Fl. Bor.-Am. 1. 150. Don, Mill. 2. 238. Meyer, Pl. Lab. 83. Torr. & Gray, Fl. 1. 330. Dietr. 4. 1080.

A. pauciflorus. Hook. in Lond. Journ. Bot. 6. 210.

A. Robbinsii. Matthew, Pl. Acad. 15, not Gray.

A. ampullarius. Watson, Am. Naturalist, 7. 300. Gray, Bot. Calif. 1. 149.

A. Andersonii. Gray, Proc. Am. Acad. 6. 524; Bot. Calif. 1. 151. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 67 & 437.

A. aridus. Gray, Proc. Am. Acad. 6. 223; Bot. Calif. 1. 147. Watson, King's Rep. 5. 443.

A. Antiselli. Gray, Bot. Calif. 1. 152.

Homalobus multiflorus. Torrey, Pac. R. Rep. 7. 10.

A. Arizonicus. Gray, Proc. Am. Acad. 7. 398. Watson, King's Rep. 5. 437.

A. Sonoræ. Torrey, Mex. Bound. 56, not Gray. Gray, Proc. Am. Acad. 6. 234.

A. arrectus. Gray, Proc. Am. Acad. 8. 289; Bot. Calif. 1. 153. Watson, King's Rep. 5. 69 & 437. Parry, Am. Naturalist, 9. 270.

A. leucophyllus. Hook. in Lond. Journ. Bot. 6. 211; not Torr. & Gray.

A. atratus. Watson, King's Rep. 5. 69 & 437, **t. 11.** Parry, Am. Naturalist, 9. 270. Gray, Bot. Calif. 1. 155.

A. Austinæ. Gray, Bot. Calif. 1. 156.

A. Beckwithii. Torr. & Gray, Pac. R. Rep. 2. 120, **t. 3** (Regensb. Flora, 1858, 622). Durand, Fl. Utah, 162. Gray, Proc. Am. Acad. 6. 221. Walp. Ann. 7. 737. Watson, King's Rep. 5. 71 & 440.

A. Bigelovii. Gray, Pl. Wright. 2. 42; Proc. Am. Acad. 6. 196. Walp. Ann. 4. 524. Torrey, Mex. Bound. 55. Watson, King's Rep. 5. 436. Brandegee, Fl. S. W. Col. 234.

A. bisulcatus. Gray, Pac. R. Rep. 12. 42, **t. 1, B**; Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 221. Watson, King's Rep. 5. 442. Porter, Hayd. Rep. 1871, 481; Fl. Col. 28.

Phaca bisulcata. Hook. Fl. Bor.-Am. 1. 145; Lond. Journ. Bot. 6. 214. Don, Mill. 2. 471. Torr. & Gray, Fl. 1. 349. Eat. & Wr. 349. Walp. Rep. 1. 688. Dietr. 4. 1064. Engelm. Pl. Upp. Miss. 189. Pl. Bourgeau, 255.

A. Bolanderi. Gray, Proc. Am. Acad. 7. 337; Bot. Calif. 1. 153. Watson, King's Rep. 5. 437.

A. Bourgovii. Gray, Proc. Am. Acad. 6. 227. Watson, King's Rep. 5. 444.

A. Brandegei. Porter, Fl. Col. 24.

A. Brazoensis. Buckley, Proc. Acad. Philad. 1861, 452. Gray, same, 1862, 162; Proc. Am. Acad. 6. 198. Walp. Ann. 7. 738. Watson, King's Rep. 5. 436.

A. Breweri. Gray, Proc. Calif. Acad. 3. 103; Proc. Am. Acad. 6. 207; Bot. Calif. 1. 146. Boland. Cat. 10. Watson, King's Rep. 5. 439.

A. cæspitosus. Gray, Proc. Am. Acad. 6. 230. Watson, King's Rep. 5. 445. Porter, Hayd. Rep. 1871, 481.

Homalobus cæspitosus & canescens. Nutt.; Torr. & Gray, Fl. 1. 352. Eat. & Wr. 272. Walp. Rep. 1. 711 & 712. Dietr. 4. 1099 & 1100.

H. brachycarpus. Nutt.; same citations. Hook. in Lond. Journ. Bot. 6. 215.

A. calycosus. Torr.; Watson, King's Rep. 5. 66 & 435. Gray, Bot. Calif. 1. 156.

A. campestris. Gray, Proc. Am. Acad. 6. 229. Watson, King's Rep. 5. 76 & 445. Porter, Hayd. Rep. 1871, 481; Fl. Col. 29. Coulter, Hayd. Rep. 1872, 764. Rothr. Pl. Wheeler, 36.

Homalobus campestris. Nutt.; Torr. & Gray, Fl. 1. 351. Eat. & Wr. 272. Walp. Rep. 1. 711. Dietr. 4. 1099. Hook. in Lond. Journ. Bot. 6. 214.

H. tenuifolius. Nutt.; same citations, excl. Hook.

H. decumbens. Gray, Proc. Acad. Philad. 1863, 60; not Nutt.

A. Canadensis. Linn. Spec. 757. Hill, Veg. Syst. 22, **t. 15, f. 1.** Lam. Dict. 1. 311. Scopoli, Delic. Fl. Insub. 2. 125 (Roem. u. Ust. Mag. Bot. 3. 30). Walter, 183. Ait. Hort. Kew. 3. 74. Willd. Spec. 3. 1274. DC. Astrag. 171; Prodr. 2. 293. Persoon, 2. 339. Pursh, 472. Lodd. Bot. Cab. **t. 372.** Elliott, 2. 227. Spreng. Syst. 3. 303. Torrey, Compend. 264; Fl. N. Y. 1. 172, **t. 25.** Hook. Fl. Bor.-Am. 1. 152. Don, Mill. 2. 263. Beck, Bot. 82. Torr. & Gray, Fl. 1. 335; Pac. R. Rep. 2. 163. Eat. & Wr. 147. Dietr. 4. 1086. Gray, Pl. Fendl. 33; Pac. R. Rep. 12. 42; Proc. Am. Acad. 6. 196; Manual, 132. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 189. Chapman, 97. Pl. Bourgeau, 255. Watson, King's Rep. 5. 67 & 436, excl. var.; Pl. Wheeler, 7. Coulter, Hayd. Rep. 1872, 764. Porter, Fl. Col. 23.

A. Carolinianus. Linn. Spec. 757. Hill, Veg. Syst. 22, **t. 14, f. 3.** Lam. Dict. 1. 311. Scopoli, ll. cc. Walter, 183. Willd. Spec. 3. 1273. Michx. Fl. 2. 66. Persoon, 2. 339. Ait. f. Hort. Kew. 4. 363. Pursh, 472. Elliott, 2. 226. DC. Prodr. 2. 293. Spreng. Syst. 3. 298. Torrey, Compend. 264. Don, Mill. 2. 263. Beck, Bot. 82. Nees, Pl. Wied. 7.

A. candidissimus. (Lower California.)

Phaca candidissima. Benth. Bot. Sulph. 13. Walp. Rep. 2. 517.

A. caryocarpus. Ker, Bot. Reg. 2, **t. 176.** Spreng. Neue Entdeck. 1. 333; Syst. 3. 301. DC. Prodr. 2. 287. Torrey, Ann. Lyc. N. Y. 2. 179; Nicol. Rep. 148; Marcy's Rep. 284. Hook. Fl. Bor.-Am. 1. 150; Lond. Journ. Bot. 6. 210. Don, Mill. 2. 258. Torr. & Gray, Fl. 1. 331. Eat. & Wr. 148. Engelm. & Gray, Pl. Lindh. 34. Gray, Pl. Lindh. 176; Pl. Wright. 1. 51; Pac. R. Rep. 12. 42; Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 192; Manual, 132. Dietr. 4. 1080. Engelm. Wisliz. Rep. 3; Pl. Up. Miss. 189. Parry, Pl. Minn. 611. Pl. Bourgeau, 255. Watson, King's Rep. 5. 435. Porter, Hayd. Rep. 1871, 480; Fl. Col. 23. Rothr. Pl. Wheeler, 36.

A. crassicarpus. Nutt.; Fras. Cat. 1813.

A. carnosus. Pursh, 740, as to fruit only. Nutt. Genera, 2. 100. Bradbury, Cat. 338. James, Long's Exped. 2. 333.

A. succulentus. Richard. Frankl. Journ. 18. Spreng. Syst. 4². 288. Don, Mill. 2. 256. Lindl. Bot. Reg. 16, t. **1324.**

A. pachycarpus. Torr. & Gray, Fl. 1. 332. Eat. & Wr. 149. Walp. Rep. 1. 700. Dietr. 4. 1080.

A. Casei. Gray, Bot. Calif. 1. 154.

A. Chamæleuce. Gray, Ives' Rep. 10, in part; Proc. Am. Acad. 6. 222. Watson, King's Rep. 5. 74, & 443 in part.

Phaca pygmæa. Nutt.; Torr. & Gray, Fl. 1. 349. Eat. & Wr. 350. Walp. Rep. 1. 689. Dietr. 4. 1064.

A. Cobrensis. Gray, Pl. Wright. 2. 43; Proc. Am. Acad. 6. 199. Torrey, Mex. Bound. 55. Watson, King's Rep. 5. 436.

A. collinus. Dougl.; Hook. Fl. Bor.-Am. 1. 140. Don, Mill. 2. 256. Walp. Rep. 2. 866. Gray, Proc. Am. Acad. 6. 225. Watson, King's Rep. 5. 444. Torrey, Bot. Wilkes, 277.

Phaca collina. Hook. Fl. Bor.-Am. 1. 140. Don, Mill. 2. 470. Torr. & Gray, Fl. 1. 347. Eat. & Wr. 350. Walp. Rep. 1. 688. Dietr. 4. 1064.

A. Cooperi. Gray, Manual, 2 ed. 98; Proc. Am. Acad. 6. 213. Watson, King's Rep. 5. 440.

Phaca neglecta. Torr. & Gray, Fl. 1. 344 & 694. Eat. & Wr. 351. Walp. Rep. 1. 686. Torrey, Fl. N. Y. 1. 173, t. **24.** Dietr. 4. 1062. Gray, Manual, 1 ed. 103.

A. Coulteri. Benth. Pl. Hartw. 307. Walp. Ann. 2. 394. Gray, Proc. Am. Acad. 6. 233; Bot. Calif. 1. 146. Watson, King's Rep. 5. 66 & 435.

A. Arthu-Schottii. Gray, Proc. Am. Acad. 6. 209 & 7. 337.

A. Crotalariæ. Gray, Proc. Am. Acad. 6. 216; Bot. Calif. 1. 149. Boland. Cat. 10. Watson, King's Rep. 5. 441.

Phaca Crotalariæ. Benth. Pl. Hartw. 307. Walp. Ann. 2. 369.

Phaca densifolia. Torrey, Pac. R. Rep. 4. 80.

Var. **virgatus.** Gray, Bot. Calif. 1. 149.

A. curtipes. Gray, Proc. Calif. Acad. 3. 103; Proc. Am. Acad. 6. 217; Bot. Calif. 1. 148. Boland. Cat. 10. Watson, King's Rep. 5. 441.

A. cyaneus. Gray, Pl. Fendl. 34. Walp. Ann. 2. 375. Torr. & Gray, Pac. R. Rep. 2. 163. Torrey, Mex. Bound. 56. Watson, Am. Naturalist, 9. 270.

A. Shortianus, var. (?) *minor.* Gray, Proc. Am. Acad. 6. 211. Watson, King's Rep. 5. 440.

A. Shortianus. Watson, Pl. Wheeler, 7.

A. debilis. Gray, Proc. Acad. Philad. 1863, 60.

Phaca debilis. Nutt.; Torr. & Gray, Fl. 1. 345. Eat. & Wr. 351. Walp. Rep. 1. 686. Dietr. 4. 1063. Gray, Proc. Am. Acad. 6. 233.

A. decumbens. Gray, Proc. Am. Acad. 6. 220. Watson, King's Rep. 5. 445. Porter, Fl. Col. 29.

Homalobus decumbens. Nutt.; Torr. & Gray, Fl. 1. 352. Eat. & Wr. 272. Walp. Rep. 1. 711. Dietr. 4. 1099. Hook. in Lond. Journ. Bot. 6. 215.

A. didymocarpus. Hook. & Arn. Bot. Beechey, 334, t. **81.** Torr. & Gray, Fl. 1. 693. Walp. Rep. 1. 701. Dietr. 4. 1082. Torrey, Pac. R. Rep. 4. 80; Mex. Bound. 55. Gray, Proc. Am. Acad. 6. 198; Bot. Calif. 1. 146. Boland. Cat. 10. Watson, King's Rep. 5. 436.

A. Catalinensis & nigrescens. Nutt. Pl. Gambel. in Proc. Acad. Philad. 4. 9, & Journ. of same, 2. 1. 152 & 153.

A. diphysus. Gray, Pl. Fendl. 34; Pl. Wright. 1. 52; Ives's Rep. 10; Proc. Am.

Acad. 6. 193; Bot. Calif. 1. 147. Walp. Ann. 2. 396. Torr. & Gray, Pac. R. Rep. 2. 120. Torrey, same, 4. 80. Durand, Fl. Utah, 162. Watson, King's Rep. 5. 65 & 435; Pl. Wheeler, 7. Porter, Hayd. Rep. 1871, 481. Parry, Am. Naturalist, 9. 270. Brandegee, Fl. S. W. Col. 234.

A. distortus. Torr. & Gray, Fl. 1. 333. Eat. & Wr. 149. Walp. Rep. 1. 700. Gray, Pl. Fendl. 35; Pl. Wright. 1. 52; Proc. Am. Acad. 6. 207; Manual, 133; Hall's Pl. Texas, 7. Dietr. 4. 1080. Watson, King's Rep. 5. 439. Young, Fl. Texas, 227.

A. Douglasii. Gray, Proc. Am. Acad. 6. 215; Bot. Calif. 1. 150. Boland. Cat. 10. Watson, King's Rep. 5. 441.

Phaca Douglasii. Torr. & Gray, Fl. 1. 346. Hook. & Arn. Bot. Beechey, 334. Eat. & Wr. 351. Walp. Rep. 1. 687. Dietr. 4. 1062.

A. Drummondii. Dougl.; Hook. Fl. Bor.-Am. 1. 153, **t. 57**; Lond. Journ. Bot. 6. 212. Don, Mill. 2. 263. Torr. & Gray, Fl. 1. 337. Eat. & Wr. 147. Walp. Rep. 1. 705. Dietr. 4. 1087. Engelm. Pl. Upp. Miss. 189. Gray, Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 200. Pl. Bourgeau, 255. Watson, King's Rep. 5. 437. Porter, Fl. Col. 24. Rothr. Pl. Wheeler, 36.

A. episcopus. Watson, Proc. Am. Acad. 10. 346.

A. eriocarpus. Watson, King's Rep. 5. 71 & 440. Parry, Am. Naturalist, 9. 270. Gray, Bot. Calif. 1. 151.

A. Fendleri. Gray, Pl. Wright. 2. 44; Ives's Rep. 10; Proc. Am. Acad. 6. 224 & 7. 527. Torrey, Sitgr. Rep. 158; Mex. Bound. 56. Watson, King's Rep. 5. 443. Porter, Fl. Col. 28. Rothr. Pl. Wheeler, 36.

Phaca Fendleri. Gray, Pl. Fendl. 36. Walp. Ann. 2. 369.

A. filipes. Torrey, Bot. Wilkes, 278. Gray, Proc. Am. Acad. 6. 226; Bot. Calif. 1. 152. Watson, King's Rep. 5. 75 & 444.

A. flavus. Nutt.; Torr. & Gray, Fl. 1. 335. Eat. & Wr. 150. Walp. Rep. 1. 703. Dietr. 4. 1085. Gray, Proc. Am. Acad. 6. 201. Watson, King's Rep. 5. 437.

A. flexuosus. Dougl.; Hook. Fl. Bor.-Am. 1. 140. Don, Mill. 2. 256 & 470. Walp. Rep. 2. 806. Dietr. 4. 1078. Gray, Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 224. Watson, King's Rep. 5. 443. Porter, Hayd. Rep. 1870, 475; Fl. Col. 28.

Phaca flexuosa. Hook. Fl. Bor.-Am. 1. 140. Torr. & Gray, Fl. 1. 348. Eat. & Wr. 350. Walp. Rep. 1. 688. Dietr. 4. 1064.

Phaca elongata. Hook.; same citations. Don, Mill. 2. 470. Torrey, Nicol. Rep. 149. Engelm. Pl. Upp. Miss. 189. Pl. Bourgeau, 255.

A. frigidus, Gray. See syn. (under *Phaca*) in DC. Astrag. 57, & Prodr. 2. 273; Ledeb. Fl. Ross. 1. 575; Trautv. Pl. Middend. 1. 48; Bunge, Astrag. 2. 28.

Var. Americanus.

Phaca frigida. Richard. Frankl. Journ. 17. Pl. Bourgeau, 255.

P. frigida, var. *Americana.* Hook. Fl. Bor.-Am. 1. 140. Torr. & Gray, Fl. 1. 344. Eat. & Wr. 349. Walp. Rep. 1. 685.

A. frigidus. Gray, Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 219. Watson, King's Rep. 5. 442. Porter, Hayd. Rep. 1871, 481; Fl. Col. 27.

Var. littoralis.

Phaca frigida. Hook. & Arn. Bot. Beechey, 122. Seem. Bot. Herald, 28. Hook. f. Arct. Pl. 289, in part.

P. frigida, var. *littoralis.* Hook. Fl. Bor.-Am. 1. 140. Torr. & Gray, Fl. 1. 344.

A. frigidus. Rothr. Fl. Alask. 445.

A. Geyeri. Gray, Proc. Am. Acad. 6. 214; Bot. Calif. 1. 146. Watson, King's Rep. 5. 72 & 440. Coulter, Hayd. Rep. 1872, 764.

Phaca annua. Geyer; Hook. in Lond. Journ. Bot. 6. 213. Walp. Ann. 1. 734. Gray, Pl. Wright. 2. 45.

A. Gibbsii. Kellogg, Proc. Calif. Acad. 2. 161, **f. 50.** Watson, King's Rep. 5. 446.

A. cyrtoides. Gray, Proc. Am. Acad. 6. 201 & 7. 525; Bot. Calif. 1. 152. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 75 & 444; Pl. Wheeler, 7.

A. glaber. Michx. Fl. 2. 66. Pursh, 472. Nutt. Genera, 2. 99. Elliott, 2. 327. DC. Prodr. 2. 293. Spreng. Syst. 3. 300. Don, Mill. 2. 263. Torr. & Gray, Fl. 1. 336. Eat. & Wr. 138. Dietr. 4. 1086. Chapman, 97. Gray, Proc. Am. Acad. 6. 208. Wood, Bot. & Fl. 94. Watson, King's Rep. 5. 439.

A. glabriusculus. Gray, Proc. Am. Acad. 6. 204 & 7. 527. Watson, King's Rep. 5. 439. Porter, Fl. Col. 26.

Phaca glabriuscula. Hook. Fl. Bor.-Am. 1. 144. Don, Mill. 2. 470. Torr. & Gray, Fl. 1. 346. Eat. & Wr. 349. Walp. Rep. 1. 687. Dietr. 4. 1063. Seem. Bot. Herald, 51.

Var. **major.** Gray, Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 204.

A. glareosus. Dougl.; Hook. Fl. Bor.-Am. 1. 152; Lond. Journ. Bot. 6. 211. Don, Mill. 2. 271. Torr. & Gray, Fl. 333 & 693. Hook. & Arn. Bot. Beechey, 334. Eat. & Wr. 148. Walp. Rep. 1. 701 & 2. 879. Dietr. 4. 1081. Torrey, Mex. Bound. 56; Bot. Wilkes, 276. Gray, Proc. Am. Acad. 211. Watson, King's Rep. 5. 440.

A. argophyllus. Nutt.; Torr. & Gray, Fl. 1. 331, excl. syn. Eat. & Wr. 149. Walp. Rep. 1. 700. Dietr. 4. 1080.

A. gracilentus. Gray, Proc. Am. Acad. 6. 223. Anderson, Cat. Pl. Nev. 119. Watson, King's Rep. 5. 443.

Phaca gracilenta. Gray, Pl. Fendl. 36. Walp. Ann. 2. 369.

A. gracilis. Nutt. Genera, 2. 100. DC. Prodr. 2. 284. Don, Mill. 2. 256. Torr. & Gray, Fl. 1. 329. Eat. & Wr. 148. Nees, Pl. Wied, 7. Torrey, Nicol. Rep. 148; Frem. Rep. 89. Dietr. 4. 1078. Hook. in Lond. Journ. Bot. 6. 210. Engelm. Pl. Upp. Miss. 189. Cooper, Pac. R. Rep. 12. 42. Gray, Proc. Am. Acad. 6. 202. Watson, King's Rep. 5. 438. Porter, Fl. Col. 35. Rothr. Pl. Wheeler, 36.

Dalea parviflora. Pursh, 474.

Psoralea parviflora. Poir. Suppl. 4. 590.

Phaca parvifolia. Nutt.; Torr. & Gray, Fl. 1. 348. Eat. & Wr. 349. Walp. Rep. 1. 688. Dietr. 4. 1064.

A. Grayi. Parry; Watson, Am. Naturalist, 8. 212.

A. Hallii. Gray, Proc. Am. Acad. 6. 224. Watson, King's Rep. 5. 443. Porter, Fl. Col. 28. Rothr. Pl. Wheeler, 36.

? *A. vaginatus.* Richard. in Frankl. Journ. 17, not Pall. Hook. Fl. Bor.-Am. 1. 149. Don, Mill. 2. 283. Torr. & Gray, Fl. 1. 329. Eat. & Wr. 138. Referred to *Phaca australis* by Planchon, fide Gray in Proc. Am. Acad. 6. 207.

A. Phacæ debili aff. Gray, Proc. Acad. Philad. 1863, 60.

A. Hartwegi. Benth. Pl. Hartw. 10. Dietr. 4. 1086. Torrey, Mex. Bound. 56. Gray, Proc. Am. Acad. 6. 199. Watson, King's Rep. 5. 436.

A. Haydenianus. Gray in Brandegee, Fl. S. W. Col. 235.

A. Hookerianus. Dietr. 4. 1086. Gray, Proc. Am. Acad. 6. 215; Bot. Calif. 1. 147. Watson, King's Rep. 5. 73 & 441.

Phaca Hookeriana. Torr. & Gray, 1. 693. Walp. Rep. 1. 685.

A. pictus, var. *foliosus.* Anderson, Cat. Pl. Nev. 120.

A. Hornii. Gray, Proc. Am. Acad. 7. 398; Bot. Calif. 1. 150. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 441.

A. humillimus. Gray, in Brandegee, Fl. S. W. Col. 235.

A. humistratus. Gray, Pl. Wright. 2. 43; Pl. Thurb. 302; Proc. Am. Acad. 6. 201. Walp. Ann. 4. 524. Torrey, Pac. R. Rep. 4. 80; Mex. Bound. 55. Watson, King's Rep. 5. 437.

A. hypoglottis. Linn. Mant. 2. 274. See syn. in DC. Astrag. 118; Poir. Suppl. 1. 505; Ledeb. Fl. Ross. 1. 602; Bunge, Astrag. 2. 83; Lange, Bidr. Syn. (Bull. Soc. Bot. France, 20. 192). — Richard. in Frankl. Journ. 18. Nutt. Genera, 2. 99. James, Cat. 186. DC. Prodr. 2. 281. Spreng. Syst. 3. 303. Torrey, Ann. Lyc. N. Y. 2. 179; Nicol. Rep. 148; Frem. Rep. 89. Hook. Fl. Bor.-Am. 1. 148; Lond. Journ. Bot. 6, 210, excl. var. Don, Mill. 2. 253. Torr. & Gray, Fl. 1. 328 & 692. Hook. & Arn. Bot. Beechey, 334. Eat. & Wr. 148. Walp. Rep. 1. 695. Dietr. 4. 1071. Gray, Pl. Fendl. 35; Proc. Acad. Philad. 60; Proc. Am. Acad. 6. 197. Seem. Bot. Herald, 51. Engelm. Pl. Upp. Miss. 189. Hook. f. Arct. Pl. 289. Pl. Bourgeau, 255. Rothr. Fl. Alask. 445; Pl. Wheeler, 36. Porter, Hayd. Rep. 1870, 474; 1871, 481; Fl. Col. 24. Watson, King's Rep. 5. 68 & 436. Coulter, Hayd. Rep. 1872, 764.

A. agrestis. Dougl.; Don, Mill. 2. 257. Walp. Rep. 2. 866. Dietr. 4. 1081.

A. goniatus. Nutt.; Torr. & Gray, Fl. 1. 330. Eat. & Wr. 140. Walp. Rep. 1. 699. Dietr. 4. 1080.

A. inflexus. Dougl.; Hook. Fl. Bor.-Am. 1. 151. Don, Mill. 2. 256. Torr. & Gray, Fl. 1. 333. Eat. & Wr. 138. Walp. Rep. 1. 701 & 2. 866. Dietr. 4. 1078. Gray, Proc. Am. Acad. 6. 212; Bot. Calif. 1. 151. Watson, King's Rep. 5. 440.

A. iodanthus. Watson, King's Rep. 5. 70 & 440. Porter, Fl. Col. 25. Gray, Bot. Calif. 1. 154.

A. adsurgens. Torrey, Stansb. Rep. 385, not Pall. Durand, Fl. Utah, 162.

A. jejunus. Watson, King's Rep. 5. 73 & 442, t. 13.

A. junceus. Gray, Proc. Am. Acad. 6. 230 & 7. 527. Watson, King's Rep. 5. 76 & 445. Porter, Hayd. Rep. 1871, 481; Fl. Col. 29. Coulter, Hayd. Rep. 1872, 764.

Homalobus junceus. Nutt.; Torr. & Gray, Fl. 1. 351. Eat. & Wr. 272. Walp. Rep. 1. 711. Dietr. 4. 1099.

Homalobus orthocarpus. Nutt.; same citations. Hook. in Lond. Journ. Bot. 6. 214.

A. diversifolius. Gray, Proc. Am. Acad. 6. 230. Porter, Fl. Col. 29.

A. Kentrophyta. Gray, Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 231; Bot. Calif. 1. 156. Porter, Hayd. Rep. 1870, 475; 1871, 481; Fl. Col. 30. Watson, King's Rep. 5. 77 & 445. Parry, Am. Naturalist, 9. 270.

Kentrophyta montana. Nutt.; Torr. & Gray, Fl. 1. 353 & 694. Eat. & Wr. 289. Walp. Rep. 1. 712. Torrey, Frem. Rep. 89; Pac. R. Rep. 4. 80. Dietr. 4. 1100. Hook. in Lond. Journ. Bot. 6. 215. Gray, Pl. Fendl. 38. Engelm. Pl. Upp. Miss. 189.

K. viridis. Nutt.; Torr. & Gray, Fl. 1. 353. Eat. & Wr. 289. Walp. Rep. 1. 712. Dietr. 4. 1100.

Var. elatus. Watson, King's Rep. 5. 77. Gray, Bot. Calif. 1. 157.

A. Lemmoni. Gray, Proc. Am. Acad. 8. 626; Bot. Calif. 1. 155.

A. lentiformis. Gray, Bot. Calif. 1. 156.

A. lentiginosus. Dougl.; Hook. Fl. Bor.-Am. 1. 151. Don, Mill. 2. 257. Torr. & Gray, Fl. 1. 333. Eat. & Wr. 138. Walp. Rep. 1. 700 & 2. 866. Dietr. 4. 1079.

Gray, Proc. Am. Acad. 6. 194; Bot. Calif. 1. 147. Anderson, Cat. Pl. Nev. 2. Watson, King's Rep. 5. 65 & 435; Pl. Wheeler, 7. Torrey, Bot. Wilkes, 275.

A. diaphanus. Dougl.; Hook. Fl. Bor.-Am. 1. 151. Don, Mill. 2. 472. Tor. Gray, Fl. 1. 151. Eat. & Wr. 148. Walp. Rep. 1. 700. Dietr. 4. 1081. Gray, P. Am. Acad. 6. 233. Watson, King's Rep. 5. 446.

Var. **Fremonti.** Watson, King's Rep. 5. 66; Pl. Wheeler, 7. Gray, Bot. C. 1. 147.

A. Fremontii. Torr. & Gray, Pac. R. Rep. 4. 80, excl. var. Gray, Proc. Am. Acad. 6. 194.

A. ineptus. Gray, Proc. Am. Acad. 7. 525. Anderson, Cat. Pl. Nev. 119.

A. leptaleus. Gray, Proc. Am. Acad. 6. 220. Watson, King's Rep. 5. 442. Porter, Fl. Col. 28.

Phaca pauciflora. Nutt.; Torr. & Gray, Fl. 1. 348. Eat. & Wr. 349. Walp. Rep. 1. 688.

Astragalus or *Phaca?* Gray, Pl. Fendl. 33.

A. pauciflorus. Gray, Proc. Acad. Philad. 1863, 60.

A. leptocarpus. Torr. & Gray, Fl. 1. 334 & 693. Eat. & Wr. 149. Walp. Rep. 1. 701. Engelm. & Gray, Pl. Lindh. 8. Dietr. 4. 1082. Gray, Proc. Am. Acad. 6. 200; Hall's Pl. Texas, 7. Watson, King's Rep. 5. 437. Young, Fl. Texas, 22.

A. leucophyllus. Torr. & Gray, Fl. 1. 336. Eat. & Wr. 150. Gray, Proc. Am. Acad. 6. 218; Bot. Calif. 1. 148. Watson, King's Rep. 5. 442. Torrey, Bot. Wilkes, 277.

Phaca leucophylla. Hook. & Arn. Bot. Beechey, 333. Torr. & Gray, Fl. 1. 693. Walp. Rep. 1. 687. Dietr. 4. 1063.

A. leucopsis. Torrey, Mex. Bound. 56, t. 16. Gray, Proc. Am. Acad. 6. 2. Bot. Calif. 1. 149. Boland. Cat. 10. Watson, King's Rep. 5. 441.

Phaca canescens. Nutt.; Torr. & Gray, Fl. 1. 344, not Hook. & Arn. Eat. Wr. 351.

Phaca leucopsis. Torr. & Gray, Fl. 1. 694.

A. Lindheimeri. Gray, Pl. Wright. 1. 52; Proc. Am. Acad. 6. 207. Torr. Gray, Pac. R. Rep. 2. 163. Walp. Ann. 4. 525. Watson, King's Rep. 5. 439.

A. lonchocarpus. Torrey, Pac. R. Rep. 4. 80. Gray, Proc. Am. Acad. 6. 2. Watson, King's Rep. 5. 442. Porter, Fl. Col. 27. Parry, Am. Naturalist, 9. 270.

Phaca macrocarpa. Gray, Pl. Fendl. 36. Walp. Ann. 2. 369.

A. lotiflorus. Hook. Fl. Bor.-Am. 1. 152. Don, Mill. 2. 472. Gray, Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 208. Watson, King's Rep. 5. 439. Porter, Fl. Col. 26. Rothr. Pl. Wheeler, 36.

Phaca lotiflora. Torr. & Gray, Fl. 1. 349. Eat. & Wr. 349. Walp. Rep. 1. 689. Dietr. 4. 1064.

Var. **brachypus.** Gray, Proc. Am. Acad. 6. 209; Hall's Pl. Texas, 7.

A. Lyallii. Gray, Proc. Am. Acad. 6. 195. Watson, King's Rep. 5. 435.

A. macrodon. Gray, Proc. Am. Acad. 6. 216; Bot. Calif. 1. 150. Watson, King's Rep. 5. 441.

Phaca macrodon. Hook. & Arn. Bot. Beechey, 333. Torr. & Gray, Fl. 1. 694. Walp. Rep. 1. 687. Dietr. 4. 1063.

A. malacus. Gray, Proc. Am. Acad. 7. 336; Bot. Calif. 1. 151. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 67 & 437.

A. Fremontii, var. Torrey, Pac. R. Rep. 4. 80. Gray, Proc. Am. Acad. 6. 233.

A. Parryi. Anderson, Cat. Pl. Nev. 120.

A. megacarpus. Gray, Proc. Am. Acad. 6. 215; Bot. Calif. 1. 148. Watson, King's Rep. 5. 441.

Phaca megacarpa. Nutt.; Torr. & Gray, Fl. 1. 343. Eat. & Wr. 350. Walp. Rep. 1. 685.

Var. **Parryi.** Gray, Bot. Calif. 1. 148. Parry, Am. Naturalist, 9. 270.

A. Menziesii. Gray, Proc. Am. Acad. 6. 217; Bot. Calif. 1. 150. Boland. Cat. 10. Watson, King's Rep. 5. 441. Torrey, Bot. Wilkes, 277.

Phaca densifolia. Smith, Rees' Cyc. n. 9. DC. Prodr. 2. 274. Spreng. Syst. 3. 287. Don, Mill. 2. 248. Hook. Icon. t. **282.** Hook. & Arn. Bot. Beechey, 138 & 334. Torr. & Gray, Fl. 1. 344. Eat. & Wr. 351. Benth. Pl. Hartw. 306.

Phaca Nuttallii. Torr. & Gray, Fl. 1. 343. Eat. & Wr. 351. Walp. Rep. 1. 685.

A. densifolius. Torrey, Pac. R. Rep. 7. 10, not Lam.

A. Mexicanus. DC. Pl. Rar. Gen. 4. 16, t. 3. Torr. & Gray, Fl. 1. 693. Gray, Pl. Wright. 1. 51; Proc. Am. Acad. 6. 193; Manual, 132. Watson, King's Rep. 5. 435. Porter, Fl. Col. 23.

A. trichocalyx. Nutt.; Torr. & Gray, Fl. 1. 332. Eat. & Wr. 149. Walp. Rep. 1. 700. Engelm. Am. Journ. Sci. 1. 46. 96. Dietr. 4. 1080. Young, Fl. Texas, 227.

A. microcystis. Gray, Proc. Am. Acad. 6. 220. Watson, King's Rep. 5. 442.

A. microlobus. Gray, Proc. Am. Acad. 6. 203. Watson, King's Rep. 5. 438. Porter, Fl. Col. 25.

A. gracilis. James, Cat. 186. Torrey, Ann. Lyc. N. Y. 2. 179. Gray, Am. Journ. Sci. 2. 33. 410; Proc. Acad. Philad. 1863, 60.

A. miser. Dougl.; Hook. Fl. Bor.-Am. 1. 153. Torr. & Gray, Fl. 1. 338. Gray, Proc. Am. Acad. 6. 228. Watson, King's Rep. 5. 444.

A. debilis. Walp. Rep. 1. 710. Dietr. 4. 1098.

A. Missouriensis. Nutt. Genera, 2. 90. James, Cat. 186; Long's Exped. 2. 333. DC. Prodr. 2. 287. Spreng. Syst. 3. 300. Don, Mill. 2. 258. Torr. & Gray, Fl. 1. 331 & 692; Pac. R. Rep. 2. 163. Nees, Pl. Wied, 7. Dietr. 4. 1080. Gray, Pl. Fendl. 35; Pl. Thurb. 300; Pac. R. Rep. 12. 41; Ives's Rep. 10; Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 210. Torrey, Sitgr. Rep. 158; Pac. R. Rep. 4. 80. Engelm. Pl. Upp. Miss. 189. Pl. Bourgeau, 255. Watson, King's Rep. 5. 440. Porter, Hayd. Rep. 1871, 481; Fl. Col. 26. Rothr. Pl. Wheeler, 36.

A. melanocarpus. Nutt. Fras. Cat. 1813. Richard. in Frankl. Journ. 18. Hook. Fl. Bor.-Am. 1. 150. Don, Mill. 2. 472.

Phaca cretacea. Buckley, Proc. Acad. Philad. 1861, 452; fide Gray, same, 1862, 162. Walp. Ann. 7. 740.

A. mollissimus. Torrey, Ann. Lyc. N. Y. 2. 178; Frem. Rep. 89; Pac. R. Rep. 4. 80. Don, Mill. 2. 271. Torr. & Gray, Fl. 1. 337; Pac. R. Rep. 2. 163. Eat. & Wr. 148. Walp. Rep. 1. 709. Dietr. 4. 1090. Gray, Pl. Fendl. 35; Pl. Wright. 1. 53 & 2. 42; Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 195. Engelm. Pl. Upp. Miss. 189. Watson, King's Rep. 5. 436. Porter, Fl. Col. 23.

Phaca villosa. James, Cat. 186.

A. glareoso aff. Gray, Am. Journ. Sci. 2. 33. 410.

A. Mortoni. Nutt. in Journ. Acad. Philad. 7. 19. Torr. & Gray, Fl. 1. 330. Eat. & Wr. 138. Walp. Rep. 1. 699. Dietr. 4. 1079. Gray, Proc. Am. Acad. 6. 196; Bot. Calif. 1. 155. Anderson, Cat. Pl. Nev. 120.

A. tristis. Nutt.; Torr. & Gray, Fl. 1. 336. Eat. & Wr. 150. Walp. Rep. 1. 704. Dietr. 4. 1086.

A. spicatus. Nutt.; same citations. Torrey, Nicol. Rep. 148?

A. Canadensis, var. *Mortoni*. Watson, King's Rep. 5. 68. Porter, Hayd. Rep. 1871, 481. Coulter, same, 1872, 764.

A. multiflorus. Gray, Proc. Am. Acad. 6. 226; Bot. Calif. 1. 153. Watson, King's Rep. 5. 75 & 444; Pl. Wheel. 7. Porter, Fl. Col. 29. Torrey, Bot. Wilkes, 278. Rothr. Pl. Wheeler, 36.

A. tenellus. Pursh, 473. Poir. Suppl. 5. 564.

Ervum multiflorum. Pursh, 739. Poir. Suppl. 5. 671. Bradbury, Cat. 33. Spreng. Syst. 3. 270.

Orobus dispar. Nutt. Genera, 2. 95. James, Cat. 186; Long's Exped. 2. 33. Seringe in DC. Prodr. 2. 380. Torrey, Ann. Lyc. N. Y. 2. 180. Spreng. Syst. 3. 261. Don, Mill. 2. 341. Dietr. 4. 1122.

Phaca nigrescens. Hook. Fl. Bor.-Am. 1. 143. Don, Mill. 2. 470.

Homalobus multiflorus. Torr. & Gray, Fl. 1. 351. Eat. & Wr. 272. Walp. Rep. 1. 711. Torrey, Nicol. Rep. 149. Dietr. 4. 1099. Hook. in Lond. Journ. Bot. 6. 214. Engelm. Pl. Upp. Miss. 189.

Homalobus dispar. Nutt.; Torr. & Gray, Fl. 1. 350. Eat. & Wr. 271. Walp. Rep. 1. 711. Dietr. 4. 1099.

A. nigrescens. Gray, Am. Journ. Sci. 2. 33. 410; Proc. Acad. Philad. 1863, 60. Pl. Bourgeau, 255.

A. nothoxys. Gray, Proc. Am. Acad. 6. 232. Watson, King's Rep. 5. 446.

A. nudus. Watson, King's Rep. 5. 74 & 443. Gray, Bot. Calif. 1. 153.

A. Nuttallianus. DC. Prodr. 2. 289. Don, Mill. 2. 259. Torr. & Gray, Fl. 1. 334. Walp. Rep. 1. 702. Engelm. & Gray, Pl. Lindh. 7. Dietr. 4. 1053. Scheele, Roem. Texas, 430. Torrey, Marcy's Rep. 284; Mex. Bound. 55. Gray, Ives's Rep. 10; Proc. Am. Acad. 6. 199; Hall's Pl. Texas, 7; Bot. Calif. 1. 146. Watson, King's Rep. 5. 68 & 436.

A. micranthus. Nutt. in. Journ. Acad. Philad. 3. 122 (Litt.-Ber. zu Linnæa, 1829, 40), not Desv. Eat. & Wr. 149.

Var. **trichocarpus.** Torr. & Gray, Fl. 1. 334; Pac. R. Rep. 2. 163. Engelm. & Gray, Pl. Lindh. 7. Gray, Pl. Fendl. 36; Proc. Am. Acad. 6. 199; Hall's Pl. Texas, 7. Watson, King's Rep. 5. 68.

A. trichocarpus. Young, Fl. Texas, 228.

Var. **canescens.** Torr. & Gray, Pac. R. Rep. 2. 163. Parry, Am. Naturalist, 9. 270.

A. Nuttallianus, vars. Gray, Pl. Wright. 1. 52 & 2. 43.

A. obcordatus. Elliott, 2. 227. DC. Prodr. 2. 306. Don, Mill. 2. 272. Torr. & Gray, Fl. 1. 332. Eat. & Wr. 148. Dietr. 4. 1099. Gray, Pl. Fendl. 35; Pl. Wright. 1. 53; Proc. Am. Acad. 6. 208. Chapman, 97. Wood, Bot. & Fl. 94. Watson, King's Rep. 5. 439.

A. Elliottii. Dietr. 4. 1080.

A. obscurus. Watson, King's Rep. 5. 69 & 437. Gray, Bot. Calif. 1. 155.

A. oocarpus. Gray, Proc. Am. Acad. 6. 213; Bot. Calif. 1. 149. Watson, King's Rep. 5. 440.

A. Crotalariæ. Torr. Mex. Bound. 56, t. 17.

A. oophorus. Watson, King's Rep. 5. 73 & 441. Gray, Bot. Calif. 1. 148.

A. Oreganus. Nutt.; Torr. & Gray, Fl. 1. 335. Eat. & Wr. 150. Walp. Rep. 1. 703. Dietr. 4. 1085. Gray, Proc. Am. Acad. 6. 202. Watson, King's Rep. 5. 438.

A. oroboides. Hornem. Fl. Dan. 8, t. 1396. See syn. in Ledeb. Fl. Ross. 1. 602; Gray, Proc. Am. Acad. 6. 205; Bunge, Astrag. 2. 26.

Var. **Americanus.** Gray, l. c. Watson, King's Rep. 5. 438. Porter, Hayd. Rep. 1871, 481; Fl. Col. 26. Rothr. Pl. Wheeler, 36.

Phaca elegans. Hook. Fl. Bor.-Am. 1. 144. Don, Mill. 2. 471. Torr. & Gray, Fl. 1. 345 & 694. Eat. & Wr. 349. Walp. Rep. 1. 686. Torrey, Frem. Rep. 89. Dietr. 4. 1063. Pl. Bourgeau, 255.

Phaca parviflora. Nutt.; Torr. & Gray, Fl. 1. 348. Eat. & Wr. 350. Walp. Rep. 1. 688. Dietr. 4. 1064. Gray, Proc. Am. Acad. 6. 233.

A. oroboides. Hook. f. Arct. Pl. 289, in part. Gray, Am. Journ. Sci. 2. 33. 410; Proc. Acad. Philad. 1863, 60.

A. oxyphysus. Gray, Proc. Calif. Acad. 3. 103; Bot. Calif. 1. 148. Boland. Cat. 10. Watson, King's Rep. 5. 442.

A. Palliseri. Gray, Proc. Am. Acad. 6. 227. Watson, King's Rep. 5. 444.

A. Palmeri. Gray, Proc. Am. Acad. 7. 398. Watson, King's Rep. 5. 445.

A. Pattersoni. Gray in Brandegee, Fl. S. W. Col. 285.

A. Parryi. Gray, Am. Journ. Sci. 2. 33. 410 (Bull. Soc. Bot. France, 9. 680); Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 211. Walp. Ann. 7. 738. Watson, King's Rep. 5. 440. Porter, Fl. Col. 27. Rothr. Pl. Wheeler, 36.

A. succumbens. Torr. & Gray, Pac. R. Rep. 2, 163, not Dougl.

A. pauciflorus. Hook. Fl. Bor.-Am. 1. 149. Don, Mill. 2. 472. Torr. & Gray, Fl. 1. 329; Pac. R. Rep. 2. 163. Eat. & Wr. 138. Walp. Rep. 1. 696. Dietr. 4. 1075. Pl. Bourgeau, 255. Gray, Proc. Am. Acad. 6. 228. Watson, King's Rep. 5. 444. Porter, Hayd. Rep. 1871, 481.

A. pectinatus. Dougl.; Hook. Fl. Bor.-Am. 1. 142. Don, Mill. 2. 257. Gray, Pac. R. Rep. 12. 42; Am. Journ. Sci. 2. 33. 410; Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 221. Watson, King's Rep. 5. 443. Porter, Fl. Col. 28. Rothr. Pl. Wheeler, 36.

Phaca pectinata. Hook. Fl. Bor.-Am. 1. 142, **t. 54**; Lond. Journ. Bot. 6. 214. Don, Mill. 2. 470. Torr. & Gray, Fl. 1. 317. Eat. & Wr. 350. Walp. Rep. 1. 687. Dietr. 4. 1063. Engelm. Pl. Upp. Miss. 189. Pl. Bourgeau, 255.

A. pictus. Gray, Proc. Am. Acad. 6. 214. Watson, King's Rep. 5. 441. Coulter, Hayd. Rep. 1872, 764. Porter, Fl. Col. 27.

Phaca picta. Gray, Pl. Fendl. 37. Walp. Ann. 2. 369.

Var. **filifolius.** Gray, Proc. Am. Acad. 6. 215. Porter, Fl. Col. 27.

Psoralea longifolia. Pursh, 741. Poir. Suppl. 4. 588. Bradbury, Cat. 338. DC. Prodr. 2. 220. Don, Mill. 2. 204. Torr. & Gray, Fl. 1. 300 & 688. Dietr. 4. 1024.

Orobus longifolius. Nutt. Genera, 2. 95. James, Cat. 186. Seringe, DC. Prodr. 2. 380. Torrey, Ann. Lyc. N. Y. 2. 180. Spreng. Syst. 3. 258. Don, Mill. 2. 341.

Phaca longifolia. Nutt.; Torr. & Gray, Fl. 1. 346. Walp. Rep. 1. 687. Torrey, Frem. Rep. 89. Hook. in Lond. Journ. Bot. 6. 213. Dietr. 4. 1063.

A. filifolius. Gray, Pac. R. Rep. 12. 42, **t. 1, A**; Ives's Rep. 10; Proc. Acad. Philad. 1863, 60.

A. Plattensis. Nutt.; Torr. & Gray, Fl. 1. 332. Eat. & Wr. 149. Walp. Rep. 1. 700. Dietr. 4. 1080. Gray, Pl. Wright. 1. 52; Proc. Am. Acad. 6. 193; Manual, 132. Engelm. Pl. Upp. Miss. 189. Watson, King's Rep. 5. 435. Porter, Fl. Col. 23.

A. caryocarpus. Torrey, Ann. Lyc. N. Y. 2. 179.

A. Mexicanus. Gray, Pl. Lindh. 176.

Var. **Tennesseensis.** Gray, Proc. Am. Acad. 6. 193; Manual, 132.

A. Tennesseensis. Gray in Chapman, 98.

A. Plattensis. Gray, Manual, 4 ed. xci.

A. platytropis. Gray, Proc. Am. Acad. 6. 526; Bot. Calif. 1. 147. Anderson, Cat. Pl. Nev. 119. Watson, King's Rep. 5. 66 & 435.

A. polaris. Benth. in Hook. f. Arct. Pl. 323. Gray, Proc. Am. Acad. 6. 233. Rothr. Fl. Alask. 445. Watson, King's Rep. 5. 446.

Oxytropis polaris. Seemann, Voy. Herald, Narrative.

A. porrectus. Watson, King's Rep. 5. 75 & 444. Gray, Bot. Calif. 1. 153.

A. Preussii. Gray, Proc. Am. Acad. 6. 222. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 443.

A. pterocarpus. Watson, King's Rep. 5. 71 & 439, **t. 12.** Gray, Bot. Calif. 1. 154.

A. pubentissimus. Torr. & Gray, Fl. 1. 693. Walp. Rep. 1. 702. Dietr. 4. 1084. Gray, Proc. Am. Acad. 6. 209; Bot. Calif. 1. 150. Watson, King's Rep. 5. 439. Porter, Fl. Col. 26.

A. multicaulis. Nutt.; Torr. & Gray, Fl. 1. 335, not Ledeb. Eat. & Wr. 150.

A. Pulsiferæ. Gray, Proc. Am. Acad. 10. 69; Bot. Calif. 1. 150.

A. Purshii. Dougl.; Hook. Fl. Bor.-Am. 1. 152. Don, Mill. 2. 271. Torr. & Gray, Fl. 1. 336 & 693; Pac. R. Rep. 2. 120. Eat. & Wr. 147. Walp. Rep. 1. 704. Dietr. 4. 1086. Durand, Fl. Utah, 162. Gray, Proc. Am. Acad. 6. 212; Bot. Calif. 1. 151. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 72 & 440. Torrey, Bot. Wilkes, 277.

Phaca mollissima. Nutt.; Torr. & Gray, Fl. 1. 350 & 694. Eat. & Wr. 350. Walp. Rep. 1. 689. Dietr. 4. 1065. Hook. in Lond. Journ. Bot. 6. 214.

A. pycnostachyus. Gray, Proc. Am. Acad. 6. 527; Bot. Calif. 1. 155. Boland. Cat. 10. Watson, King's Rep. 5. 443.

A. racemosus. Pursh, 740. Poir. Suppl. 5. 564. Bradbury, Cat. 338. DC. Prodr. 2. 294. Torrey, Ann. Lyc. N. Y. 2. 179; Nicol. Rep. 148. Don, Mill. 2. 264. Torr. & Gray, Fl. 1. 337. Nees, Pl. Wied, 7. Dietr. 4. 1087. Engelm. Pl. Upp. Miss. 189. Gray, Pac. R. Rep. 12. 42; Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 200. Watson, King's Rep. 5. 437. Porter, Fl. Col. 25. Rothr. Pl. Wheeler, 36.

A. galegoides. Nutt. Genera, 2. 100. James, Cat. 186. Spreng. Syst. 3. 300. Eat. & Wr. 148.

A. reflexus. Torr. & Gray, Fl. 1. 334. Eat. & Wr. 149. Walp. Rep. 1. 701. Dietr. 4. 1082. Gray, Proc. Am. Acad. 6. 197; Hall's Pl. Texas, 7. Watson, King's Rep. 5. 436. Young, Fl. Texas, 228.

A. Robbinsii. Gray, Manual, 2 ed. 98; Proc. Am. Acad. 6. 204. Watson, King's Rep. 5. 438.

Phaca Robbinsii. Oakes, Hovey's Mag. 7. 179. Gray, Manual, 1 ed. 103. Walp. Ann. 3. 849.

Var. **occidentalis.** Watson, King's Rep. 5. 70. Brandegee, Fl. S. W. Col. 235.

A. sclerocarpus. Gray, Proc. Am. Acad. 6. 225. Watson, King's Rep. 5. 444. Torrey, Bot. Wilkes, 276.

Phaca podocarpa. Hook. Fl. Bor.-Am. 1. 142. Don, Mill. 2. 470. Torr. & Gray, Fl. 1. 347 & 694. Eat. & Wr. 350. Walp. Rep. 1. 688. Dietr. 4. 1064.

A. scopulorum. Porter, Fl. Col. 24.

A. sericoleucus. Gray, Am. Journ. Sci. 2. 33. 410; Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 232. Watson, King's Rep. 5. 445. Porter, Fl. Col. 30.

Phaca sericea. Nutt.; Torr. & Gray, Fl. 1. 343. Eat. & Wr. 350. Walp. Rep. 1. 689. Dietr. 4. 1065. Hook. in Lond. Journ. Bot. 6. 213.

A. serotinus. Gray, Pac. R. Rep. 12. 18 & 51, **t. 5**; Proc. Am. Acad. 6. 229. Watson, King's Rep. 5. 445. Torrey, Bot. Wilkes, 278.

A. sesquiflorus. Watson, Proc. Am. Acad. 10. 346.

A. Shortianus. Nutt.; Torr. & Gray, Fl. 1. 331. Eat. & Wr. 149. Walp. Rep. 1. 700. Dietr. 4. 1080. Gray, Proc. Am. Acad. 6. 210, excl. var. Watson, King's Rep. 5. 440; Am. Naturalist, 9. 270. Porter, Hayd. Rep. 1871, 481; Fl. Col. 27. Rothr. Pl. Wheeler, 36.

A humilis. Geyer; Hook. in Lond. Journ. Bot. 6. 211. Gray, Pl. Fendl. 35; Pl. Wright. 1. 52. Walp. Ann. 1. 236.

A. cyaneus. Gray, Proc. Acad. Philad. 1863, 60.

A. simplicifolius. Gray, Proc. Am. Acad. 6. 231. Watson, King's Rep. 77 & 445, **t. 12, f. 3–9.** Porter, Fl. Col. 29.

Phaca simplicifolia. Nutt.; Torr. & Gray, Fl. 1. 350. Eat. & Wr. 350. Walp. Rep. 1. 689. Dietr. 4. 1065. Hook. in Lond. Journ. Bot. 6. 215.

A. Sonoræ. Gray, Pl. Wright. 2. 44; Proc. Am. Acad. 6. 223. Walp. Ann. 4. 524. Watson, King's Rep. 5. 443. Parry, Am. Naturalist, 9. 270.

A. Spaldingii. Gray, Proc. Am. Acad. 6. 524. Watson, King's Rep. 5. 435.

A. chætodon. Torrey; Gray, Proc. Am. Acad. 6. 194. Torrey, Bot. Wilkes, 275.

A. sparsiflorus. Gray, Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 205. Watson, King's Rep. 5. 439. Porter, Fl. Col. 26.

Var. majusculus. Gray, ll. cc.

A. speirocarpus. Gray, Proc. Am. Acad. 225; Bot. Calif. 1. 152. Watson, King's Rep. 5. 74 & 444.

Var. falciformis. Gray, Bot. Calif. 1. 152.

RADCLIFFE

A. stenophyllus. Torr. & Gray, Fl. 1. 329. Walp. Rep. 1. 698. Dietr. 4. 1079. Gray, Proc. Am. Acad. 6. 226. Watson, King's Rep. 5. 444.

A. leptophyllus. Nutt. in Journ. Acad. Philad. 7. 18. Eat. & Wr. 138.

A. subcompressus. Gray in Brandegee, Fl. S. W. Col. 234.

A. succumbens. Dougl.; Hook. Fl. Bor.-Am. 1. 151. Don, Mill. 2. 263. Torr. & Gray, Fl. 1. 332. Eat. & Wr. 138. Walp. Rep. 1. 700. Dietr. 4. 1080. Gray, Ives's Rep. 10; Proc. Am. Acad. 6. 200. Watson, King's Rep. 5. 437. Torrey, Bot. Wilkes, 276.

? *A. dorycnioides.* Dougl.; Don, Mill. 2. 258. Walp. Rep. 2. 866. Dietr. 4. 1081.

A. tegetarius. Watson, King's Rep. 5. 76 & 444, **t. 13.** Coulter, Hayd. Rep. 1872, 764. Porter, Fl. Col. Appx. Rothr. Pl. Wheeler, 36.

Var. implexus. W. M. Canby in Porter, l. c.

A. tener. Gray, Proc. Am. Acad. 6. 206 & 525; Bot. Calif. 1. 146. Boland. Cat. 10. Watson, King's Rep. 5. 437.

Phaca astragalina, var. *β.* Hook. & Arn. Bot. Beechey, 334. Torr. & Gray, Fl. 1. 694.

A. hypoglottis, var. *strigosa.* Kellogg, Proc. Calif. Acad. 2. 115, **fig. 37.**

A. tephrodes. Gray, Pl. Wright. 2. 45; Pl. Thurb. 300; Proc. Am. Acad. 6. 222. Walp. Ann. 4. 525. Torrey, Mex. Bound. 56. Watson, King's Rep. 5. 443.

A. Thompsonæ. Watson, Proc. Am. Acad. 10. 345. Gray, Bot. Calif. 1. 151.

A. Thurberi. Gray, Pl. Thurb. 312; Proc. Am. Acad. 6. 220. Walp. Ann. 4. 525. Torrey, Mex. Bound. 56. Watson, King's Rep. 5. 442.

A. trichopodus. Gray, Proc. Am. Acad. 6. 218; Bot. Calif. 1. 149. Boland. Cat. 10. Watson, King's Rep. 5. 442.

Phaca trichopoda. Nutt.; Torr. & Gray, Fl. 1. 343. Eat. & Wr. 351. Walp. Rep. 1. 685.

A. tridactylicus. Gray, Proc. Am. Acad. 6. 527. Watson, King's Rep. 5. 445. Porter, Fl. Col. 30.

? *Phaca digitata.* Torrey, Frem. Rep. 89.

A. triflorus. Gray, Pl. Wright. 2. 45; Pl. Thurb. 299; Ives's Rep. 10; Proc. Am. Acad. 6. 214. Torrey, Mex. Bound. 66. Watson, King's Rep. 5. 440. Porter, Fl. Col. 27.

Phaca triflora. DC. Astrag. 62, t. 1; Prodr. 2. 273.

P. Candolliana. HBK. Nov. Gen. 6. 495, t. 586.

A. triphyllus. Pursh, 740. Poir. Suppl. 5. 564. Bradbury, Cat. 338. Gray, Proc. Am. Acad. 6. 232. Watson, King's Rep. 5. 445.

Phaca cæspitosa. Nutt. Genera, 2. 98. James, Cat. 186. DC. Prodr. 2. 2[illegible] Spreng. Syst. 3. 292. Hook. Fl. Bor.-Am. 1. 143, t. 55; Lond. Journ. Bot. 6. 2[illegible] Don, Mill. 2. 248. Torr. & Gray, Fl. 1. 342. Torrey, Nicol. Rep. 149. Dietr. 4. 1065. Engelm. Pl. Upp. Miss. 189.

P. argophylla. Nutt.; Torr. & Gray, Fl. 1. 342. Eat. & Wr. 350. Walp. Rep. 1. 689. Dietr. 4. 1065.

P. triphylla. Eat. & Wr. 351.

A. Utahensis. Torr. & Gray, Pac. R. Rep. 2. 120. Durand, Fl. Utah, 102. Gray, Proc. Am. Acad. 6. 213; Bot. Calif. 1. 151. Walp. Ann. 7. 739. Watson, King's Rep. 5. 72 & 440; Pl. Wheeler, 7. Porter, Hayd. Rep. 1871, 481. Coulter, same, 1872, 764.

Phaca mollissima, var. *Utahensis.* Torrey, Stansb. Rep. 385, t. 2 (Regensb. Flora, 36. 702). Walp. Ann. 4. 495.

A. vaccarum. Gray, Pl. Wright. 2. 43; Proc. Am. Acad. 6. 199. Walp. Ann. 4. 524. Torrey, Mex. Bound. 56. Watson, King's Rep. 5. 436.

A. ventorum. Gray; Watson in Am. Naturalist, 8. 212.

A. vestitus.

Phaca vestita. Benth. Bot. Sulph. 13. Walp. Rep. 2. 517. (Lower California.)

A. villosus. Michx. Fl. 2. 67. Pursh, 473. Chapman, 98. Gray, Proc. Am. Acad. 6. 208. Wood, Bot. & Fl. 94. Watson, King's Rep. 5. 439.

Phaca villosa. Nutt. Genera, 2. 97. Elliott, 2. 225. DC. Prodr. 2. 274. Spreng. Syst. 3. 292. Don, Mill. 2. 248. Torr. & Gray, Fl. 1. 349 in part. Eat. & Wr. 351. Dietr. 4. 1064.

A. Webberi. Gray, Bot. Calif. 1. 154.

? *Phaca* —— ? Torr. & Gray, Fl. 1. 694, under *P. leucophylla.*

A. Whitneyi. Gray, Proc. Am. Acad. 6. 526; Bot. Calif. 1. 148. Anderson, Cat. Pl. Nev. 119. Watson, King's Rep. 5. 441.

A. Wrightii. Gray, Pl. Lindh. 176; Pl. Wright. 1. 51; Proc. Am. Acad. 6. 199; Hall's Pl. Texas, 7. Walp. Ann. 2. 376. Watson, King's Rep. 5. 436.

A. —— ? Torr. & Gray, Pac. R. Rep. 2. 103. Gray, Proc. Am. Acad. 6. 233 & 234 (n. 1 & 4). Brandegee, Fl. S. W. Col. 230.

A. adsurgens; iodanthus.
agrestis; hypoglottis.
arcticus; Oxytropis Uralensis.
argophyllus; glareosus.
Artha-Schottii; Coulteri.
Canadensis; Mortoni.
carnosus; caryocarpus, Sophora sericea.
Carolinianus; Canadensis.
Catalinensis; didymocarpus.
chætodon; Spaldingii.
crassicarpus; caryocarpus.
Crotalariæ; oocarpus.
cyaneus; Shortianus.
cytoides; Gibbsii.
debilis; miser.
deflexus; Oxytropis deflexus.
densifolius; Menziesii.
diaphanus; lentiginosus.
divergens; junceus.
dorycnioides; succumbens.
Elliottii; obcordatus.
filifolius; pictus.
Fremontii; lentiginosus, malacus.
galegoides; racemosus.
gemmatus; hypoglottis.
gracilis; microlobus.
hians; Oxytropis deflexa.
humilis; Shortianus.
hypoglottis; adsurgens, tener.
inceptus; lentiginosus.
Labradoricus; alpinus.

A. Lamberti; Oxytropis Lamberti.
Laxmanni; adsurgens.
leptophyllus; stenophyllus.
leucophyllus; arrectus.
melanocarpus; Missouriensis.
Mexicanus; Plattensis.
micranthus; Nuttallianus.
multicaulis; pubentissimus.
nigrescens; didymocarpus, multiflorus, Oxytropis nigrescens.
pachycarpus; caryocarpus.
Parryi; malacus.
pauciflorus; alpinus, leptaleus.
pictus; Hookerianus.
retroflexus; Oxytropis deflexa.
Robbinsii; alpinus.
secundus; alpinus.
Shortianus; cyaneus.
Sonoræ; Arizonicus.
spicatus; Mortoni.
striatus; adsurgens.
succulentus; caryocarpus.
succumbens; Parryi.
tenellus; multiflorus.
Tennesseensis; Plattensis.
trichocalyx; Mexicanus.
trichocarpus; Nuttallianus.
tristis; Mortoni.
Uralensis; Oxytropis Uralensis.
vaginatus; Hallii.
—— ?; Hallii, leptaleus, mollissimus.

BAPTISIA alba. R. Br. in Ait. f. Hort. Kew. 3. 6. Elliott, 1. 468. DC. Prodr. 2. 100. Spreng. Syst. 2. 348. Don, Mill. 2. 114. Spach, Hist. Veg. 1. 166. Hook. Comp. Bot. Mag. 1. 21. Torr. & Gray, Fl. 1. 386. Eat. & Wr. 154. Dietr. 2. 1500. Chapman, 112. Gray, Manual, 143.

Crotalaria alba. Linn. Spec. 716.

Sophora alba. Linn. Syst. 12 ed. 2. 287; Mant. 2. 440. Hill, Veg. Syst. 22, t. **54**, f. 5. Reich. Syst. 2. 242. Walter, 134. Ait. Hort. Kew. 2. 45.

Podalyria alba. Willd. Spec. 2. 503. Michx. Fl. 1. 264. Poir. Dict. 5. 441. Persoon, 1. 453. Pursh, 308.

3. australis. R. Br. in Ait. f. Hort. Kew. 3. 6. Elliott, 1. 468. DC. Prodr. 2. 100. Spreng. Syst. 2. 347. Torrey, Ann. Lyc. N. Y. 2. 174; Fl. N. Y. 1. 188; Marcy's Rep. 284. Don, Mill. 2. 113. Spach, Hist. Veg. 1. 166. Hook. Comp. Bot. Mag. 1. 21. Maund, Bot. Gard. 12, t. **567**. Torr. & Gray, Fl. 1. 385. Dietr. 2. 1500. Engelm. in Wisl. Rep. 3. Chapman, 112. Gray, Manual, 143.

Sophora australis. Linn. Syst. 12 ed. 2. 287; Mant. 2. 378. Ait. Hort. Kew. 2. 45. Sims, Bot. Mag. t. **509**.

Sophora alba, var. Murr. Comm. Gött. 1. 96, t. **6**. Reich. Syst. 4. 652.

Sophora cærulea. Trew, Pl. Rar. 6, t. **14**.

Podalyria australis. Willd. Spec. 2. 503. Vent. Hort. Cels, t. **56.** Poir. Dict. 5. 441. Persoon, 1. 453.

Podalyria cærulea. Michx. Fl. 1. 264. Pursh, 307.

Baptisia exaltata. Sweet, Brit. Fl. Gard. t. **97.** Don, Mill. 2. 113. Dietr. 2. 1500. Walp. Rep. 1. 564.

? *B. versicolor.* Lodd. Bot. Cab. t. **1144.**

? *B. confusa.* Sweet; Don, Mill. 2. 113. Dietr. 2. 1500. Walp. Rep. 1. 564.

B. cærulea. Eat. & Wr. 154.

B. Texana. Buckley, Proc. Acad. Phil. 1861, 452; fide Gray, same, 1862, 163.

Var. **minor.** Torr. & Gray, Fl. 1. 385. Walp. Rep. 1. 563.

B. minor. Lehm. Ind. Sem. Hamb. 1827, 16; Pug. Pl. 1. 8 (Act. Acad. Leop. 14. 803). Don, Mill. 2. 113 & 468. Dietr. 2. 1500.

B. lanceolata. Elliott, 1. 467. DC. Prodr. 2. 100. Don, Mill. 2. 113. Torr. & Gray, Fl. 1. 384. Eat. & Wr. 154. Dietr. 2. 1499. Walp. Rep. 1. 563. Chapman, 111. Wood, Bot. & Fl. 84.

Sophora lanceolata. Walter, 135.

Podalyria uniflora. Michx. Fl. 1. 263. Persoon, 1. 453. Pursh, 307. Poir. Suppl. 4. 442.

Podalyria lanceolata. Poir. Dict. 5. 445.

B. uniflora. Spreng. Syst. 2. 347. Hook. Comp. Bot. Mag. 1. 21.

B. Lecontei. Torr. & Gray, Fl. 1. 386. Walp. Rep. 1. 563. Chapman, 111. Wood, Bot. & Fl. 85.

B. leucantha. Torr. & Gray, Fl. 1. 385; Pac. R. Rep. 2. 126. Walp. Rep. 1. 563. Torrey, Frem. Rep. 89; Emory's Rep. 408. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 190. Chapman, 112. Gray, Manual, 143.

Podalyria alba. Sims, Bot. Mag. t. **1177.** James, Long's Exped. 1. 63.

Baptisia alba. Hook. Fl. Bor.-Am. 1. 129.

B. leucophæa. Nutt. Genera, 1. 282, & Add. James, Cat. 181. DC. Prodr. 2. 100. Spreng. Syst. 2. 348. Torrey, Ann. Lyc. N. Y. 2. 174; Marcy's Rep. 284. Don, Mill. 2. 113. Hook. Comp. Bot. Mag. 1. 21. Torr. & Gray, Fl. 1. 385. Eat. & Wr. 154. Dietr. 2. 1500. Scheele, Roem. Texas, 428. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 190. Chapman, 112. Gray, Manual, 143. Hook. f. Bot. Mag. t. **5900.**

Podalyria bracteata. Muhl. Cat. 2 ed. 42.

B. bracteata. Elliott, 1. 469. Spreng. Neue Entdeck. 2. 196; Syst. 2. 348. DC. Prodr. 2. 100. Don, Mill. 2. 113. Eat. & Wr. 154. Dietr. 2. 1500.

Var. **lævicaulis.** Gray, Hall's Pl. Texas, 7.

B. megacarpa. Chapman; Torr. & Gray, Fl. 1. 386. Walp. Rep. 1. 563. Chapman, 111. Wood, Bot. & Fl. 85.

B. microphylla. Nutt. in Journ. Acad. Philad. 7. 97. Torr. & Gray, Fl. 1. 383. Eat. & Wr. 154. Walp. Rep. 1. 563. Chapman, 111. Wood, Bot. & Fl. 84.

B. stipulacea. Ravenel, Proc. Ell. Soc. 1856, t. **2**; Torrey, Bulletin, 6. 81. Chapman, 111.

B. perfoliata. R. Br. in Ait. f. Hort. Kew. 3. 5. Elliott. 1. 467. DC. Prodr. 2. 100. Lodd. Bot. Cab. t. **1104.** Spreng. Syst. 2. 347. Hook. Bot. Mag. t. **3121.** Don, Mill. 2. 113. Spach, Hist. Veg. 1. 167. Torr. & Gray, Fl. 1. 383. Eat. & Wr. 154. Dietr. 2. 1499. Chapman, 110. Wood, Bot. & Fl. 84. Ravenel & Gray, Am. Journ. Sci. 3. 2. 462 (Trim. Journ. Bot. 10. 84).

Crotolaria perfoliata. Linn. Spec. 714. Hill, Veg. Syst. 21, t. **9, f. 2.** Lam. Dict. 2. 194. Ait. Hort. Kew. 3. 18. Nouv. Duham. 4. 192. Persoon, 2. 283.

? *Lathyrus Americanus.* Mill. Dict.; DC. Prodr. 2. 376. Don, Mill. 2. 337. Dietr. 4. 1119.

Sophora perfoliata. Walter, 135.

Rafnia perfoliata. Willd. Spec. 3. 949.

Podalyria perfoliata. Michx. Fl. 1. 263. Poir. Suppl. 4. 442. Persoon, 1. 453. Pursh, 307.

B. Serenæ. Curtis, Am. Journ. Sci. 2. 7. 406 (Bot. Zeit. 8. 530). Walp. Ann. 2. 207. Chapman, 112. Wood, Bot. & Fl. 85. Ravenel in Torrey Bulletin, 6. 81.

B. simplicifolia. Croom, Am. Journ. Sci. 1. 25. 74 & 28. 167. Nutt. in Journ. Acad. Philad. 7. 96. Torr. & Gray, Fl. 1. 383. Eat. & Wr. 154. Walp. Rep. 1. 563. Chapman, 110. Wood, Bot. & Fl. 84.

B. sphærocarpa. Nutt. in Journ. Acad. Philad. 7. 97. Torr. & Gray, Fl. 1. 384. Eat. & Wr. 154. Walp. Rep. 1. 563. Scheele, Roem. Texas, 428. Gray, Hall's Pl. Texas, 7. Young, Fl. Texas, 241.

B. tinctoria. R. Br. in Ait. f. Hort. Kew. 3. 6. Nutt. Genera, 1. 282. Barton, Fl. N. Am. 1, **t. 29.** Elliott, 1. 467. Lodd. Bot. Cab. **t. 588.** Torrey, Fl. U. S. 441; Fl. N. Y. 1. 187. DC. Prodr. 2. 100. Spreng. Syst. 2. 348. Raf. Med. Bot. 1. 79, **f. 14.** Hook. Fl. Bor.-Am. 1. 129. Don, Mill. 2. 114. Beck, Bot. 77. Spach, Hist. Veg. 1. 166. Lindl. Fl. Med. 238. Darling. Fl. Cestr. 404. Torr. & Gray, Fl. 1. 386. Eat. & Wr. 154. Dietr. 2. 1500. Chapman, 111. Gray, Manual, 143.

Sophora tinctoria. Linn. Spec. 373. Hill, Veg. Syst. 22, **t. 54, f. 3.** Walter, 134. Ait. Hort. Kew. 2. 45.

Podalyria tinctoria. Lam. Ill. 2. 471, **t. 327, f. 1.** Willd. Spec. 2. 503. Michx. Fl. 1. 265. Poir. Dict. 5. 442. Persoon, 1. 453. Sims, Bot. Mag. **t. 1099.** Pursh, 308. Bigel. Fl. Bost. 170. Elliott, 1. 467.

B. villosa. Nutt. Genera, 1. 281. Elliott, 1. 468. DC. Prodr. 2. 100. Spreng. Syst. 2. 348. Don, Mill. 2. 114. Torr. & Gray, Fl. 1. 384. Eat. & Wr. 154. Dietr. 2. 1500. Chapman, 111. Gray, Manual, 680. Wood, Bot. & Fl. 84.

Sophora villosa. Walter, 134.

Podalyria villosa. Michx. Fl. 1. 264. Poir. Dict. 5. 445; Suppl. 4. 442. Persoon, 1. 453. Pursh, 307.

B. alba; leucantha.
bracteata; leucophæa.
cærulea, confusa & exaltata; australis.
fraxinifolia; Thermopsis fraxinifolia.
minor; australis.
B. mollis; Thermopsis mollis & fraxinifolia.
stipulacea; microphylla.
Texana; australis.
uniflora; lanceolata.
versicolor; australis.

BAUHINIA lunarioides. Gray in herb. ined.

Casparea, n. sp. Torrey, Mex. Bound. 59.

CÆSALPINIA Bonduc. Benth. & Hook. Genera, 1. 566.

Guilandina Bonduc, Linn. Torr. & Gray, Fl. 1. 397.

G. Bonducella, Linn. Griseb. Fl. Brit. W. Ind. 204.

C. Mexicana. Gray, Proc. Am. Acad. 5. 157. (Northern Mexico.)

C. PULCHERRIMA, Swartz. Torr. & Gray, Fl. 1. 397. Torrey, Mex. Bound. 60. Seem. Bot. Herald, 281.

CALLIANDRA Californica. Benth. Bot. Sulph. 14, t. **11**; Lond. Journ. Bot. 3. 105; Rev. Mim. in Trans. Linn. Soc. 30. 552. Gray, Proc. Am. Acad. 5. 157. (Lower California.)

C. conferta. Benth. in Gray, Pl. Wright. 1. 63; Rev. Mim. 546. Gray, Pl. Wright. 2. 53. Walp. Ann. 4. 634.

C. eriophylla. Benth. in Lond. Journ. Bot. 3. 105; Rev. Mim. 552.

C. Chamædrys. Engelm. in Gray, Pl. Fendl. 39. Walp. Ann. 2. 458. Gray, Pl. Wright. 1. 63 & 2. 52. Torrey, Mex. Bound. 61.

C. humilis. Benth. in Lond. Journ. Bot. 5. 103; Rev. Mim. 552; Seem. Bot. Herald, 282. Gray, Pl. Wright. 2. 53. Torrey, Pac. R. Rep. 4. 82; Mex. Bound. 6 .

Acacia humilis. Schlecht. in Linnæa, 12. 567.

C. herbacea. Engelm. in Gray, Pl. Fendl. 39. Walp. Ann. 2. 458. Gray, Wright. 1. 63. Torrey, Mex. Bound. 61.

C. Portoricensis. Benth. l. c. 3. 99, & Rev. Mim. 543, with syn.

Var. ——. Torrey, Mex. Bound. 61. (Sonora.)

C. reticulata. Gray, Pl. Wright. 2. 53. Walp. Ann. 4. 634. Torrey, Mex. Bound. 61. Benth. Rev. Mim. 550.

CANAVALIA obtusifolia. DC. Prodr. 2. 404, with syn. Benth. in Mart. Fl. Bras. 15¹. 178, t. **48**, with syn. Chapman, 109.

CASSIA armata. Watson, Proc. Am. Acad. 11. 136. Brew. & Wats. Bot. Calif. 1. 161.

C. Bahamensis. Mill. Dict. n. 9. Benth. Rev. Cass. in Trans. Linn. Soc. 27. 541. Gray, Am. Journ. Sci. 3. 3. 377.

C. angustisiliqua. Torr. & Gray, Fl. 1. 396, not Lam. Chapman, 114.

C. bauhinioides. Gray, Pl. Lindh. 180; Pl. Wright. 1. 59 & 2. 80; Am. Journ. Sci. 3. 3. 377. Walp. Ann. 2. 444. Torr. & Gray, Pac. R. Rep. 2. 163. Torrey, Mex. Bound. 59. Benth. Rev. Cass. 529.

C. biflora. Linn. Spec. 378. See syn. in Benth. Rev. Cass. 543. — Torr. & Gray, Fl. 1. 395. Chapman, 114. Griseb. Fl. Brit. W. Ind. 208. Gray, Am. Journ. Sci. 3. 3. 378.

C. calycioides. DC.; Collodon, Hist. Cass. 125, t. **20, B.** DC. Prodr. 2. 503. Benth. in Mart. Fl. Bras. 15¹. 160, t. **43**, f. **2**; Rev. Cass. 569. Gray, Am. Journ. Sci. 3. 3. 378.

C. Chamæcrista. Linn. Spec. 379. Lam. Dict. 1. 650. Walter, 136. Ait. Hort. Kew. 2. 53. Sims, Bot. Mag. t. **107**. Willd. Spec. 2. 528. Michx. Fl. 1. 262. Persoon, 1. 459. Smith in Abbot's Insects, t. **94**. Pursh, 306. Bigel. Fl. Bost. 171. Collod. Hist. Cass. 129, with syn. Elliott, 1. 473. Torrey, Fl. U. S. 439; Ann. Lyc. N. Y. 2. 194; Fl. N. Y. 1. 190; Frem. Rep. 89; Emory's Rep. 139 & 408; Marcy's Rep. 285; Mex. Bound. 59. DC. Prodr. 2. 503. Vogel, Syn. Cass. 62. Don, Mill. 2. 447. Beck, Bot. 94. Hook. Comp. Bot. Mag. 1. 24. Darling. Fl. Cestr. 433. Torr. & Gray, Fl. 1. 395. Eat. & Wr. 184. Dietr. 2. 1489. Walp. Rep. 1. 835. Gray, Pl. Fendl. 38; Manual, 144; Am. Journ. Sci. 3. 3. 378. Bertol. Bot. Misc. 11. 19. Richard. Arct. Exped. 424. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 190. Chapman, 115. Benth. Rev. Cass. 576; Mart. Fl. Bras. 15¹. 172, with syn. Porter, Fl. Col. 33.

C. pulchella. Salisb. Prodr. 326.

C. fasciculata. Michx. Fl. 1. 262. Persoon, 1. 459. Poir. Dict. 2. 129. Pursh, 306. Collod. Hist. Cass. 129. Elliott, 1. 473. Torrey, Fl. U. S. 440. DC. Prodr.

2. 502. Spreng. Syst. 2. 341. Don, Mill. 2. 447. Beck, Bot. 94. Eat. & Wr. 184. Dietr. 2. 1488.

Xamacrista triflora. Raf. Sylv. Tellur. 127.

Var. **cinerea.** Torr. & Gray, Fl. 1. 396, excl. syn. Engelm. & Gray, Pl. Lindh. 34.

C. Covesii. Gray, Proc. Am. Acad. 7. 399; Am. Journ. Sci. 3. 3. 377. Watson, Pl. Wheeler, 8. Brew. & Wats. Bot. Calif. 1. 161.

C. grammica. Spreng. Neue Entdeck. 3. 55. Benth. Rev. Cass. 572. Gray, Am. Journ. Sci. 3. 3. 378.

C. lineata, var. *brachyloba.* Griseb. Mem. Am. Acad. 8. 179.

C. Greggii. Gray, Pl. Wright. 1. 59; Am. Journ. Sci. 3. 3. 378. Walp. Ann. 4. 599. Benth. Rev. Cass. 575.

C. leptocarpa. Benth. in Linnæa, 22. 528; Mart. Fl. Bras. 15[1]. 112; Rev. Cass. 531. Walp. Ann. 4. 599. Gray, Am. Journ. Sci. 3. 3. 377.

C. Lindheimeriana. Scheele in Linnæa, 21. 457. Gray, Pl. Lindh. 179; Pl. Wright. 1. 59; Am. Journ. Sci. 3. 3. 377. Walp. Ann. 2. 443. Torrey, Pac. R. Rep. 7. 10; Mex. Bound. 59. Benth. Rev. Cass. 530.

C. Marylandica. Linn. Spec. 378. Medicus, Bot. Beobacht. 1782, 338. Lam. Dict. 1. 648. Walter, 135. Ait. Hort. Kew. 2. 53. Willd. Spec. 2. 524. Michx. Fl. 1. 261. Barton, Bot. Appx. 27, t. **17**. Persoon, 1. 458. Schkuhr, Handb. 1. 355, t. **113**. Pursh, 306. Collad. Hist. Cass. 111. Barton f. Mat. Med. t. **12**. Nutt. Genera, 1. 280. Bigel. Med. Bot. 2. 166, t. **39**; Fl. Bost. 2 ed. 171. Elliott, 1. 473. Torrey, Fl. U. S. 1. 439; Fl. N. Y. 1. 189. DC. Prodr. 2. 498. Spreng. Syst. 2. 337. Raf. Bot. Med. 1. 93, f. **18**. Don, Mill. 2. 443. Beck, Bot. 94. Spach, Hist. Veg. 1. 115. Vogel, Syn. Cass. 32. Darling. Fl. Cestr. 439. Lindl. Fl. Med. 261. Torr. & Gray, Fl. 1. 395. Eat. & Wr. 183. Dietr. 2. 1485. Walp. Rep. 1. 821. Gray, Pl. Fendl. 38; Manual, 144; Am. Journ. Sci. 3. 3. 377. Chapman, 114. Lesqx. Fl. Ark. 358. Benth. Rev. Cass. 534.

C. ligustrina, Linn. Spec. 378, in part (syn. *Gron.*). Pursh, 306. Elliott, 1. 472. Eat. & Wr. 184. Excluded by Torr. & Gray, Fl. 1. 396, and Gray, l. c.

C. acuminata. Moench, Meth. 273.

C. reflexa. Salisb. Prodr. 326.

C. nictitans. Linn. Spec. 380. Lam. Dict. 1. 651. Roth, Beyt. Bot. 1. 90; Catal. Bot. 2. 42; Neue Beyt. Bot. 1. 201. Koen. & Sims, Ann. Bot. 2. 30. Walter, 135. Willd. Spec. 2. 529. Michx. Fl. 1. 262. Persoon, 1. 459. Pursh, 307. Collad. Hist. Cass. 128. Elliott, 1. 474. James, Long's Exped. 3. 19. Torrey, Fl. U. S. 440; Fl. N. Y. 1. 190; Mex. Bound. 59. DC. Prodr. 2. 503. Spreng. Syst. 2. 342. Don, Mill. 2. 447. Beck, Bot. 94. Hook. Comp. Bot. Mag. 1. 24. Vogel, Syn. Cass. 62. Darling. Fl. Cestr. 432. Torr. & Gray, Fl. 1. 396. Bigel. Fl. Bost. 3 ed. 181. Eat. & Wr. 184. Dietr. 2. 1489. Walp. Rep. 1. 834. Gray, Pl. Wright. 1. 59; Manual, 144; Am. Journ. Sci. 3. 3. 378. Griseb. Fl. Brit. W. Ind. 211. Chapman, 115. Benth. Rev. Cass. 578.

C. procumbens. Linn. Spec. 380, excl. hab.; not herb. Lam. Dict. 1. 651. Willd. Spec. 2. 530. Roth, Catal. Bot. 2. 42; Neue Beyt. Bot. 1. 201. Pursh, 307. DC. Prodr. 2. 504. Spreng. Syst. 2. 343. Colla, Hort. Ripul. Appx. 4. 40. Eat. & Wr. 184. Dietr. 2. 1490.

Grimaldia assurgens & decumbens. Schrank, Denkschr. Münch. Akad. 1808, 110 & 111, t. **4, 5**.

C. diffusa. DC. in Mem. Soc. Gen. 2. 130; Prodr. 2. 504.

C. smaragdina. Macfad. Fl. Jam. 1. 347.

Nictitella amœna. Raf. Sylv. Tellur. 128.

Var. **aspera.** Torr. & Gray, Fl. 1. 396. Chapman, 115.

C. aspera. Muhl. Cat. 42. Elliott, 1. 474. Spreng. Neue Entdeck. 2. 196; Syst. 2. 342. Don, Mill. 2. 449. Vogel, Syn. Cass. 67. Eat. & Wr. 184. Dietr. 2. 1490. Walp. Rep. 1. 837.

C. occidentalis. Linn. Spec. 377. See syn. in Collad. Hist. Cass. 107; Vogel, Syn. Cass. 21, & Linnæa, 15. 68; Benth. Rev. Cass. 532. — Michx. Fl. 1. 261. Pursh, 305. Ker, Bot. Reg. t. **83.** Elliott, 1. 471. Torrey, Ann. Lyc. N. Y. 2. 194. Audubon, Birds, t. **35.** Torr. & Gray, Fl. 1. 394. Eat. & Wr. 184. Walp. Rep. 1. 816. Chapman, 114. Gray, Manual, 144; Am. Journ. Sci. 3. 3. 377; Hall's Pl. Texas, 7.

C. Caroliniana. Walter, 135.

C. linearis. Michx. Fl. 1. 261. Persoon, 1. 457. Poir. Suppl. 2. 126. Pursh, 306. Collad. Hist. Cass. 108. Elliott, 1. 472. DC. Prodr. 2. 497. Spreng. Syst. 2. 338. Don, Mill. 2. 443. Vogel, Syn. Cass. 44. Eat. & Wr. 184. Dietr. 2. 1485. Walp. Rep. 1. 826.

C. ciliata. Raf. Fl. Lud. 100.

Ditremexa Caroliniana & fœtida. Raf. Sylv. Tellur. 127.

C. procumbens. Linn. herb.; Spec. 2 ed. 543, in part. Benth. Rev. Cass. 578. Gray, Am. Journ. Sci. 3. 3. 378.

C. pygmæa. DC. in Mem. Soc. Gen. 2. 130; Prodr. 2. 502.

C. chamæcristoides. Collad. Hist. Cass. 134. Torrey, Mex. Bound. 59.

C. Texana. Buckley, Proc. Acad. Phil. 1861, 452; fide Gray, same, 1862, 103.

C. pumilio. Gray, Pl. Lindh. 180; Pl. Wright. 1. 59 & 2. 50; Am. Journ. Sci. 3. 3. 377. Walp. Ann. 2. 444. Torr. & Gray, Pac. R. Rep. 2. 163. Torrey, Mex. Bound. 59. Benth. Rev. Cass. 529.

C. Rœmeriana. Scheele, Linnæa, 21. 457. Gray, Pl. Lindh. 180; Pl. Wright. 1. 59 & 2. 50; Am. Journ. Sci. 3. 3. 377; Hall's Pl. Texas, 7. Walp. Ann. 2. 443. Torr. & Gray, Pac. R. Rep. 2. 163. Torrey, same, 4. 82; Mex. Bound. 59. Benth. Rev. Cass. 529.

C. Tora. Linn. Spec. 376. See syn. in Collad. Hist. Cass. 96; Benth. Rev. Cass. 535. — Walter, 135. Pursh, 305. Elliott, 1. 471. Hook. Comp. Bot. Mag. 1. 24. Eat. & Wr. 184. Gray, Am. Journ. Sci. 3. 3. 377.

C. obtusifolia. Linn. Spec. 377. Collad. Hist. Cass. 95, with syn. DC. Prodr. 2. 495. Vogel, Syn. Cass. 24. Torr. & Gray, Fl. 1. 394. Griseb. Fl. Brit. W. Ind. 209. Torrey, Mex. Bound. 59. Chapman, 114. Smith, Proc. Acad. Philad. 1867, 19. Gray, Manual, 144; Hall's Pl. Texas, 7.

C. humilis. Collad. Hist. Cass. 96, with syn. DC. Prodr. 2. 495. Don, Mill. 2. 439. Bertol. Bot. Misc. 11. 18.

C. toroides. Raf. Med. Bot. 1. 96. *Diallobus falcatus.* Raf. Sylv. Tellur. 128.

C. Wislizeni. Gray, Pl. Wright. 1. 60 & 2. 50; Am. Journ. Sci. 3. 3. 378. Walp. Ann. 4. 599. Torrey, Mex. Bound. 59. Benth. Rev. Cass. 547.

C. Wrightii. Gray, Pl. Wright. 2. 50; Am. Journ. Sci. 3. 3. 378. Walp. Ann. 4. 599. Torrey, Mex. Bound. 59. Benth. Rev. Cass. 571.

CENTROSEMA Plumieri, Benth. Torr. & Gray, Fl. 1. 290. Eat. & Wr. 188.

Clitoria Plumieri, Turp. Nutt. Genera, 2. 18.

Vexillaria Plumiera. Eat. & Wr. 473.

C. Virginianum. Benth. in Ann. Mus. Vind. 2. 120. See syn. in Benth., Mart. Fl. Bras. 15[1]. 132; Griseb. Fl. Brit. W. Ind. 193. — Hook. Comp. Bot. Mag. 1. 22. Torr. & Gray, Fl. 1. 290. Eat. & Wr. 187. Dietr. 4. 1170. Torrey, Mex. Bound. 50. Chapman, 107. Gray, Manual, 141; Hall's Pl. Texas, 7.

Clitoria Virginiana. Linn. Spec. 753. Hill, Veg. Syst. 22, **t. 9, f. 1.** Lam. Dict. **2. 51.** Walter, 186. Ait. Hort. Kew. 3. 36. Swartz, Obs. Bot. 282. Willd. Spec. **3. 1069.** Michx. Fl. 2. 62. Persoon, 2. 302. Pursh, 487. Elliott, 2. 240. DC. **Prodr. 2. 234.** Spreng. Syst. 3. 256. Torrey, Ann. Lyc. N. Y. 2. 176; Compend. **271.** Lindl. Bot. Reg. 13, **t. 1047.** Don, Mill. 2. 215. Beck, Bot. 81. Spach, Hist. **Veg. 1. 243.**

Clitoria calcarigera. Salisb. Parad. Lond. **t. 51.**

Bradburia scandens & *? erecta.* Raf. Fl. Lud. 104. Poir. in Lam. Ill. 3. 677. **Spreng.** Syst. 3. 255.

Vexillaria Virginiana. Eaton, Manual, 1 ed. 83. James, Long's Exped. 3. 33. **Eat. & Wr.** 473.

Clitoria Alabamensis. Bertol. Bot. Misc. 9. 12, **t. 5** (Bot. Zeit. 9. 902); fide Gray, **Am. Journ.** Sci. 2. 14. 115.

Var. angustifolium. Griseb. Fl. Brit. W. Ind. 193.

CERCIS Canadensis. Linn. Spec. 374. DuRoi, Obs. Bot. 10. Marshall, Arbust. **32.** Lam. Dict. 2. 586. Walter, 135. Ait. Hort. Kew. 2. 47. Willd. Spec. **2. 508.** Nouv. Duham. 1. 19. Michx. Fl. 1. 265. Persoon, 1. 454. Pursh, 308. **Elliott, 1.** 470. James, Long's Exped. 1. 317 & 3. 4. Torrey, Fl. U. S. 441; Ann. **Lyc. N. Y. 2.** 194; Fl. N. Y. 1. 188; Nicol. Rep. 149; Emory's Rep. 408. DC. **Prodr. 2.** 518. Spreng. Syst. 2. 340. Guimp. Otto & Hayne, **t. 92.** Hook. Fl. Bor.-**Am. 1. 167**; Comp. Bot. Mag. 1. 24. Don, Mill. 2. 463. Beck, Bot. 94. Spach, **Hist. Veg.** 1. 129. Darling. Fl. Cestr. 435. Torr. & Gray, Fl. 1. 392. Eat. & Wr. **190.** Dietr. 2. 1515. Loud. Arbor. 2. 650, **t. 101, 103.** Gray, Pl. Fendl. 38; **Manual, 144.** Richard. Arct. Exped. 424. Parry, Pl. Minn. 611. Engelm. Pl. **Upp. Miss.** 190. Curtis, Bot. N. Car. 50. Lesqx. Fl. Ark. 357. Chapman, 114. **Baillon,** Hist. Pl. 2. 121.

Siliquastrum cordatum. Moench, Meth. 54.

C. occidentalis, Torrey; Gray, Pl. Lindh. 177, excl. var. Walp. Ann. 2. 440. **Torr. & Gray,** Pac. R. Rep. 2. 163. Torrey, same, 4. 82; Mex. Bound. 58; Bot. **Wilkes,** 283, **t. 3.** Boland. Cat. 10. Brew. & Wats. Bot. Calif. 1. 160.

C. siliquastrum, var. Benth. Pl. Hartw. 307.

C. Californica. Torrey; Benth. Pl. Hartw. 361.

Var. Texensis.

C. occidentalis, var. Gray, Pl. Lindh. 177. Walp. Ann. 2. 440. **Brew. & Wats. Bot. Calif.** 1. 161.

C. reniformis. Engelm.; Scheele, Roem. Texas, 428.

C. occidentalis. Gray, Hall's Pl. Texas, 7.

CHÆTOCALYX Schottii. Torrey, Mex. Bound. 56, **t. 18.** Benth. & Hook. **Gen. Pl.** 1. 513.

Nissolia Schottii. Gray, Proc. Linn. Soc. 5. 25.

C. Wislizeni. Gray, Pl. Wright. 1. 51 & 2. 45. Walp. Ann. 4. 489. Torrey, **Mex. Bound. 56, t. 18, fig. 5–7.** Benth. & Hook. l. c.

Nissolia Wislizeni. Gray, Proc. Linn. Soc. 5. 26.

CHAPMANIA Floridana. Torr. & Gray, Fl. 1. 355 & 694. Benth. in Trans. **Linn. Soc. 18. 155.** Eat. & Wr. 191. Dietr. 4. 1131. Chapman, 100. Wood, Bot. **& Fl. 87.** Gray, Proc. Am. Acad. 11. 103.

CICER ARIETINUM, Linn. Eat. & Wr. 196. Gray, Pl. Fendl. 30; Pl. Wright. 2. 32. Torrey, Stansb. Rep. 385. Durand, Fl. Utah, 161.

CLADRASTIS tinctoria. Raf. Fl. Kent. 1824; Neog. 1825; Med. Fl. 2. 210; New Sylv. 3. 83. Torr. & Gray, Fl. 1. 390. Chapman, 113. Gray, Manual, 143.

Virgilia lutea. Michx. f. Arbr. Amer. 3. 266, t. 3. Pursh, 309. Nutt. Genera, 1. 284. Loisel. Herb. Amat. t. 297. DC. Prodr. 2. 98. Spreng. Syst. 4². 171. Don, Mill. 2. 112. Spach, Hist. Veg. 1. 163. Eat. & Wr. 480. Dietr. 2. 1501. Loud. Arbor. 2. 565, t. 78.

CLITORIA Mariana. Linn. Spec. 753. Hill, Veg. Syst. 22, t. 9, f. 2. Lam. Dict. 2. 51. Walter, 186. Willd. Spec. 3. 1070. Michx. Fl. 2. 62. Persoon, 2. 303. Ait. f. Hort. Kew. 4. 301. Pursh, 487. Nutt. Genera, 2. 118. Elliott, 2. 241. DC. Prodr. 2. 234. Spreng. Syst. 3. 256. Torrey, Compend. 271; Fl. N. Y. 1. 163, t. 24; Marcy's Rep. 284. Don, Mill. 2. 215. Beck, Bot. 80. Hook. Comp. Bot. Mag. 1. 22. Torr. & Gray, Fl. 1. 290. Dietr. 4. 1166. Gray, Pl. Lindh. 170; Manual, 141; Hall's Pl. Texas, 7. Benth. Journ. Linn. Soc. 2. 38, with syn. Lesqx. Fl. Ark. 357. Chapman, 107.

C. Mexicana. Link, Enum. 2. 235, fide Benth. l. c. DC. Prodr. 2. 234. Don, Mill. 2. 215. Dietr. 4. 1116. Benth. Pl. Hartw. 60.

Vexillaria Mariana. Eaton, Manual, 1 ed. 83. Eat. & Wr. 473.

COLOGANIA angustifolia. Kunth, Mimos. 209, t. 58. DC. Prodr. 2. 235. Dietr. 4. 1166. Benth. Pl. Hartw. 287. Gray, Pl. Wright. 1. 45.

C. longifolia. Gray, Pl. Wright. 2. 35. Walp. Ann. 4. 551. Torrey, Mex. Bound. 51.

C. pulchella. HBK. Nov. Gen. 6. 414. DC. Prodr. 2. 237. Schlecht. in Linnæa, 12. 287. Dietr. 4. 1166. Gray, Pl. Wright. 1. 45 & 2. 34. Torrey, Mex. Bound. 51.

COURSETIA (?) glandulosa. Gray, Proc. Am. Acad. 5. 156. (Lower California.)

CRACCA Edwardsii. Gray, Pl. Wright. 2. 35. Walp. Ann. 4. 481.

C. —— ? Benth. in Vidensk. Medd. Kjöbenh. 1853, 9. Walp. Ann. 4. 480.

CROTALARIA lupulina. Raf. Specc. Sci. 1. 159. DC. Prodr. 2. 133. Seem. Bot. Herald, 279. Gray, Pl. Wright. 1. 53 & 2. 49; Proc. Am. Acad. 5. 157. Torrey, Mex. Bound. 57. — Referred to *C. pumila* by Griseb. Fl. Brit. W. Ind. 179.

C. ovalis. Pursh, 469. Poir. Suppl. 5. 635. Nutt. Genera, 2. 94. Elliott, 2. 194. DC. Prodr. 2. 124. Spreng. Syst. 3. 238. Don, Mill. 2. 134. Hook. Comp. Bot. Mag. 1. 21. Torr. & Gray, Fl. 1. 370. Eat. & Wr. 213. A.DC. Not. Pl. Rar. Gen. 8. 22. Dietr. 4. 927. Chapman, 89. Wood, Bot. & Fl. 90. Gray, Hall's Pl. Texas, 7.

Anonymos rotundifolia. Walter, 181.

C. sagittalis, var. *ovalis.* Michx. Fl. 2. 55.

C. rotundifolia. Poir. Suppl. 2. 402. Spreng. Syst. 3. 237.

C. Hookeriana. A. DC. Not. Pl. Rar. Gen. 8. 23.

C. pumila. Orteg. Dec. 2. 23. DC. Prodr. 2. 132. Griseb. Fl. Brit. W. Ind. 179, with syn.

C. Purshii. DC. Prodr. 2. 124. Spreng. Syst. 3. 238. Don, Mill. 2. 134. Torr. & Gray, Fl. 1. 370. Dietr. 4. 927. Chapman, 89. Wood, Bot. & Fl. 90.

C. parviflora. Pursh, 469, not Roth. Elliott, 2. 293. DC. Prodr. 2. 124. Spreng. Syst. 3. 238. Torrey, Compend. 262. Don, Mill. 2. 134. Beck, Bot. 77. Curtis, Journ. Bost. Soc. Nat. Hist. 1. 120. Eat. & Wr. 213.

? *C. lævigata.* Pursh, 469, not Lam. Poir. Suppl. 5. 635. Eat. & Wr. 213.

C. sagittalis. Linn. Spec. 714. Lam. Dict. 2. 195. Ait. Hort. Kew. 3. 18. Michx. Fl. 2. 55. Persoon, 2. 283. Pursh, 469. Elliott, 2. 193. Bigel. Fl. Bost. 267. DC. Prodr. 2. 124. Spreng. Syst. 3. 238. Torrey, Compend. 262; Fl. N. Y. 1. 185; Mex. Bound. 57. Don, Mill. 2. 134. Beck, Bot. 77. Hook. Comp. Bot. Mag. 1. 21. Darling. Fl. Cestr. 404. Schlecht. in Linnæa, 12. 278. Torr. & Gray, Fl. 1. 370. Eat. & Wr. 213. Dietr. 4. 927. Seem. Bot. Herald, 279. Gray, Pl. Wright. 2. 49; Manual, 126; Hall's Pl. Texas, 7. Engelm. Pl. Upp. Miss. 190. Chapman, 89.

C. sagittata. Hill, Veg. Syst. 21, t. **10**, f. **1**.

Anonymos sagittalis. Walter, 181.

C. parviflora. Roth, Catal. 1. 83. Poir. Suppl. 2. 400. Willd. Spec. 3. 973; Enum. 748. Persoon, 2. 283.

C. platycarpa. Link, Enum. 2. 227. DC. Prodr. 2. 124. Don, Mill. 2. 134.

CYTISUS SCOPARIUS, Link, Gray, Manual, 679.

Spartium angulatum. Raf. Prec. Dec. Som. 37; Journ. Bot. 4. 269.

Genista angulata. Poir. Suppl. 5. 688. DC. Prodr. 2. 152. Don, Mill. 2. 154.

DALEA albiflora. Gray, Pl. Wright. 2. 38 & 41. Walp. Ann. 4. 482 & 483. Torrey, Mex. Bound. 52. Brew. & Wats. Bot. Calif. 1. 141.

D. alopecuroides. Willd. Spec. 3. 1336; Enum. 787. Pursh, 474. Nutt. Genera, 2. 101. DC. Prodr. 2. 244. Don, Mill. 2. 223. Hook. Comp. Bot. Mag. 1. 22. Spach, Hist. Veg. 1. 247. Vogel, Linn. 10. 591. Torr. & Gray, Fl. 1. 308. Eat. & Wr. 219. Benth. & Oerst. in Vidensk. Medd. Kjöbenh. 1855, 3. Torrey, Nicol. Rep. 148; Emory's Rep. 138; Pac. R. Rep. 4. 78; Mex. Bound. 52. Dietr. 4. 1014. Gray, Pl. Fendl. 31; Pl. Wright. 1. 47, & 2. 38 & 41 (Walp. Ann. 4. 482); Am. Journ. Sci. 2. 33. 410; Proc. Acad. Philad. 1863, 60; Manual, 129. Seem. Bot. Herald, 279. Engelm. Pl. Upp. Miss. 188. Lesqx. Fl. Ark. 355. Chapman, 93. Porter, Fl. Col. 22. Brew. & Wats. Bot. Calif. 1. 141.

Psoralea Dalea. Linn. Spec. 764. Poir. Dict. 5. 691.

Dalea Cliffortiana. Willd. Spec. 3. 1336. Pursh, 474. Elliott, 2. 195.

D. Linnæi. Michx. Fl. 2. 57, t. **38**. Persoon, 2. 345. Spreng. Syst. 3. 328.

Psoralea alopecuroides. Poir. Dict. 5. 695.

Petalostemon alopecuroides. Persoon, 2. 268. Pursh, 461.

Dalea pedunculata. Pursh, 474. DC. Prodr. 2. 244. Don, Mill. 2. 223.

Psoralea pedunculata. Poir. Suppl. 4. 590.

D. amœna. Watson, Am. Naturalist, 7. 300.

D. arborescens. Torrey; Gray, Pl. Thurb. 316. Walp. Ann. 4. 485. Torrey, Pac. R. Rep. 5. 360. Brew. & Wats. Bot. Calif. 1. 142.

D. argyræa. Gray, Pl. Wright. 1. 47, & 2. 38 & 41. Walp. Ann. 4. 483 & 484. Torrey, Mex. Bound. 52.

D. aurea. Nutt. in Fras. Cat. 1813; Genera, 2. 101. Pursh, 740. Bradbury, Cat. 338. James, Cat. 186. DC. Prodr. 2. 244. Spreng. Syst. 3. 327. Torrey, Ann. Lyc. N. Y. 2. 177; Marcy's Rep. 284; Pac. R. Rep. 4. 78; Mex. Bound. 52. Don, Mill. 2. 213. Spach, Hist. Veg. 1. 246. Torr. & Gray, Fl. 1. 308. Eat. & Wr. 219. Engelm. & Gray, Pl. Lindh. 7 & 31. Dietr. 4. 1014. Gray, Pl. Lindh. 175; Pl. Fendl. 31; Pl. Wright. 1. 46 & 2. 41 (Walp. Ann. 4. 482); Hall's Pl. Texas, 7. Scheele, Roem. Texas, 429. Engelm. Pl. Upp. Miss. 188. Young, Fl. Texas, 222.

Psoralea aurea. Poir. Suppl. 4. 590.

Cylipogon capitatum. Raf. Jour. Phys. 1819, 97.

Petalostemon (?) *capitatum.* DC. Prodr. 2. 244. Don, Mill. 2. 223.

D. Californica. Watson, Proc. Am. Acad. 11. 132. Brew. & Wats. Bot. Calif. 1. 142.

D. brachystachys. Gray, Pl. Wright. 2. 39 & 40. Walp. Ann. 2. 482 & 483. Torrey, Mex. Bound. 52. Brew. & Wats. Bot. Calif. 1. 141.

D. calycosa. Gray, Pl. Wright. 2. 40. Walp. Ann. 4. 482 & 484. Brew. & Wats. Bot. Calif. 1. 142.

D. canescens. Benth. Bot. Sulph. 12. Walp. Rep. 2. 513. (Lower California.)

D. chrysorhiza. Gray, Proc. Am. Acad. 5. 156. (Lower California.)

D. divaricata. Benth. Bot. Sulph. 12. Walp. Rep. 2. 513. (Lower California.)

D. Emoryi. Gray, Pl. Thurb. 315; Ives's Rep. 10. Walp. Ann. 4. 485. Torrey, Pac. R. Rep. 5. 360, t. 11; Mex. Bound. 52. Brew. & Wats. Bot. Calif. 1. 142.

D. —— ? Torrey, Emory's Rep. 138.

D. filiformis. Gray, Pl. Wright. 2. 39 & 40. Walp. Ann. 4. 482 & 484. Torrey, Mex. Bound. 52.

D. formosa. Torrey, Ann. Lyc. N. Y. 2. 177; Emory's Rep. 138, t. 1; Pac. R. Rep. 4. 78; Mex. Bound. 52. Don, Mill. 2. 224. Torr. & Gray, Fl. 1. 308; Pac. R. Rep. 2. 163. Eat. & Wr. 219. Walp. Rep. 1. 652; Ann. 4. 482. Dietr. 4. 1015. Gray, Pl. Fendl. 32; Pl. Wright. 1. 46, & 2. 37 & 40; Ives's Rep. 10.

D. Fremonti. Torrey; Gray, Pl. Thurb. 316. Walp. Ann. 4. 485. Torrey, Pac. R. Rep. 5. 360. Watson, King's Rep. 5. 65; Pl. Wheeler, 7. Brew. & Wats. Bot. Calif. 1. 143.

D. frutescens. Gray, Pl. Lindh. 175; Pl. Wright. 1. 46, & 2. 37 & 41; Hall's Pl. Texas, 7. Walp. Ann. 2. 360 & 4. 483. Torrey, Mex. Bound. 53.

D. Greggii. Gray, Pl. Thurb. 314. Walp. Ann. 4. 485. Torrey, Mex. Bound. 52.

D. Hallii. Gray, Proc. Am. Acad. 8. 625; Hall's Pl. Texas, 7.

D. Jamesii. Torr. & Gray, Fl. 1. 308. Eat. & Wr. 219. Walp. Rep. 1. 654; Ann. 4. 483. Dietr. 4. 1019. Gray, Pl. Fendl. 32; Pl. Wright. 1. 49, & 2. 40 & 41; Pl. Thurb. 300. Torrey, Pac. R. Rep. 4. 78; Mex. Bound. 52. Porter, Fl. Col. 23.

Psoralea Jamesii. Torrey, Ann. Lyc. N. Y. 2. 175. Don, Mill. 2. 204.

D. Johnsoni. Watson, King's Rep. 5. 64. Parry, Am. Naturalist, 9. 270.

D. Kingii. Watson, King's Rep. 5. 64, t. 10. Brew. & Wats. Bot. Calif. 1. 143.

D. lachnostachya. Gray, Pl. Wright. 1. 46, & 2. 37 & 41. Seem. Bot. Herald, 279. Walp. Ann. 4. 483 & 484. Torrey, Mex. Bound. 52.

D. lævigata. Gray, Pl. Wright. 2. 38 & 41, not Don. Walp. Ann. 2. 482 & 484. Torrey, Mex. Bound. 52. Brew. & Wats. Bot. Calif. 1. 141.

D. lanata. Spreng. Syst. 3. 327. Torr. & Gray, Fl. 1. 690. Gray, Pl. Fendl. 31; Pl. Wright. 1. 47, & 2. 37 & 41. Walp. Ann. 4. 483. Engelm. in Wisliz. Rep. 12. Torrey, Marcy's Rep. 271; Pac. R. Rep. 4. 78. Watson, King's Rep. 5. 419. Brandegee, Fl. S. W. Col. 234.

D. ——, n. sp. Torrey, Ann. Lyc. N. Y. 2. 177.

D. lanuginosa. Nutt.; Torr. & Gray, Fl. 1. 307. Eat. & Wr. 219. Walp. Rep. 1. 652. Dietr. 4. 1016.

D. lasiathera. Gray, Pl. Wright. 1. 48, & 2. 37 & 40. Walp. Ann. 4. 482 & 484. Torrey, Mex. Bound. 52.

D. pogonathera. Gray, Pl. Lindh. 175.

D. laxiflora. Pursh, 741. Bradbury, Cat. 338. Nutt. Genera, 2. 101. James, Cat. 186. DC. Prodr. 2. 244. Spreng. Syst. 3. 328. Torrey, Ann. Lyc. N. Y. 2. 177; Emory's Rep. 38 & 408; Marcy's Rep. 284; Pac. R. Rep. 4. 78. Don, Mill. 2. 213. Torr. & Gray, Fl. 1. 307; Pac. R. Rep. 2. 126. Eat. & Wr. 219. Gray, Pl.

Lindh. 175; Pl. Fendl. 31; Pl. Wright. 1. 48 & 2. 40; Am. Journ. Sci. 2. 33. 411; *Proc.* Acad. Philad. 1863, 59. Walp. Ann. 4. 482. Dietr. 4. 1014. Scheele, Roem. *Texas*, 429. Engelm. Pl. Upp. Miss. 188. Young, Fl. Texas, 222. Porter, Fl. Col. 22.

D. enneandra. Nutt. Fras. Cat. 1813.

Psoralea laxiflora. Poir. Suppl. 4. 590.

Cylipogon virgatum. Raf. Journ. Phys. 1819, 97.

D. penicillata. Moric. Pl. Nouv. 66, t. 45. Walp. Rep. 2. 513.

D. leucostachys. Gray, Pl. Fendl. 32; Pl. Wright. 1. 49 & 2. 41. Walp. Ann. 2. 359 & 4. 483. (Chihuahua.)

D. mollis. Benth. Pl. Hartw. 306. Torrey, Pac. R. Rep. 5. 360; Mex. Bound. 52. Walp. Ann. 2. 359 & 4. 483. Gray, Pl. Wright. 1. 47 & 2. 41; Pl. Thurb. 315. Brew. & Wats. Bot. Calif. 1. 141.

D. —— ? Torrey, Emory's Rep. 139.

Var. Neo-Mexicana. Gray, Pl. Wright. 1. 47; Ives's Rep. 10.

D. nana. Torrey; Gray, Pl. Fendl. 31; Pl. Lindh. 175; Pl. Wright. 1. 46, & 2. 37 & 41; Pl. Thurb. 300; Hall's Pl. Texas, 7. Walp. Ann. 2. 359 & 4. 483. Torrey, Pac. R. Rep. 4. 78; Mex. Bound. 52. Brew. & Wats. Bot. Calif. 1. 141.

Var. elatior. Gray, Pl. Wright. 1. 46. Porter, Fl. Col. 22.

D. Parryi. Torr. & Gray; Gray, Proc. Am. Acad. 7. 397. Brew. & Wats. Bot. Calif. 1. 142.

D. divaricata, var. *cinerea.* Gray, l. c. 7. 331.

D. pogonathera. Gray, Pl. Fendl. 31; Pl. Wright. 1. 48 & 2. 37. Walp. Ann. 2. 359. Seem. Bot. Herald, 279. Torrey, Mex. Bound. 52.

D. polyadenia. Torrey; Watson, King's Rep. 5. 64, t. 9. Brew. & Wats. Bot. Calif. 1. 142.

D. polygonoides. Gray, Pl. Wright. 2. 39 & 40. Walp. Ann. 4. 482 & 483. Torrey, Mex. Bound. 52.

D. ramosissima. Benth. Bot. Sulph. 11, t. 10. Walp. Rep. 2. 513. Torrey, Emory's Rep. 138.

D. Schottii. Torrey, Mex. Bound. 53. Walp. Ann. 7. 709. Brew. & Wats. Bot. Calif. 1. 143.

D. scoparia. Gray, Pl. Fendl. 32; Pl. Wright. 1. 47, & 2. 38 & 41; Pl. Thurb. 305. Walp. Ann. 2. 360 & 4. 483. Torrey, Pac. R. Rep. 5. 360; Mex. Bound. 52.

D. spinosa. Gray, Pl. Thurb. 315; Ives's Rep. 10. Torrey, Pac. R. Rep. 4. 78; 7. 9, t. 3; Mex. Bound. 53. Walp. Ann. 4. 485. Watson, Proc. Am. Acad. 11. 132. Brew. & Wats. Bot. Calif. 1. 143.

Asagræa spinosa. Baillon, Adansonia, 9. 232; Hist. Pl. 2. 288.

D. Wislizeni. Gray, Pl. Fendl. 32; Pl. Wright. 2. 38 & 41. Walp. Ann. 2. 359 & 483. Seem. Bot. Herald, 279. Torrey, Mex. Bound. 52. Brew. & Wats. Bot. Calif. 1. 142.

D. Wrightii. Gray, Pl. Wright. 1. 49, & 2. 40 & 41. Walp. Ann. 4. 483 & 484. Torrey, Mex. Bound. 52.

D. agastachya; Petalostemon obovatus.
candida; Petalostemon candidus.
carnea; Petalostemon carneus.
D. Cliffortiana; alopecuroides.
compacta; Petalostemon macrostachyus.

D. divaricata; Parryi.
enneandra; laxiflora.
Kuhnistera; Petalostemon corymbosus.
lanuginosa; lanata.
Linnæi; alopecuroides.
ornata; Petalostemon ornatus.
parviflora; Astragalus gracilis.
D. pedunculata; alopecuroides.
penicillata; laxiflora.
pogonathera; lasiathera.
purpurea; Petalostemon violaceus.
villosa; Petalostemon villosus.
violacea; Petalostemon violaceus.
—— ?; Emoryi, lanata, mollis.

DESMANTHUS acuminatus. Benth. Hook. Journ. Bot. 4. 357; Rev. Mim. in Trans. Linn. Soc. 30. 387. Gray, Pl. Lindh. 184; Hall's Pl. Texas, 8.

D. brachylobus. Benth. Hook. Journ. Bot. 4. 358; Rev. Mim. 387. Walp. Rep. 1. 864. Gray, Pl. Fendl. 38; Pl. Lindh. 184; Manual, 145; Hall's Pl. Texas, 8. Engelm. Pl. Upp. Miss. 190. Torrey, Pac. R. Rep. 4. 82. Wood, Bot. & Fl. 82.

Mimosa Illinoensis. Michx. Fl. 2. 254. Persoon, 2. 263. Poir. Suppl. 1. 73.

Acacia brachyloba. Willd. Spec. 4. 1071. Ait. f. Hort. Kew. 5. 468. DC. Cat. Monsp. 73. Pursh, 305. Spreng. Syst. 3. 141.

Darlingtonia brachyloba. DC. Mem. Leg. 427, t. 66; Ann. Sci. Nat. 1. 4. 97. Prodr. 2. 443. Don, Mill. 2. 397. Torr. & Gray, Fl. 1. 401. Eat. & Wr. 220. Torrey, Frem. Rep. 89; Emory's Rep. 139 & 408.

Darlingtonia intermedia. Torrey, Ann. Lyc. N. Y. 2. 181. Don, Mill. 2. 397. Eat. & Wr. 220.

Darlingtonia brevifolia. Raf. New Fl. 1. 42.

Desmanthus falcatus. Scheele, Linnæa, 21. 455.

Var. **glandulosus.** Engelm. & Gray, Pl. Lindh. 35.

Mimosa glandulosa. Michx. Fl. 2. 254. Vent. Choix, t. 27. Koen. & Sims, Ann. Bot. 2. 364. Persoon, 2. 263. Poir. Suppl. 1. 73.

Acacia glandulosa. Willd. Spec. 4. 1071; Enum. 1053. Ait. f. Hort. Kew 5. 468. Pursh, 305. Spreng. Syst. 3. 141.

Mimosa contortuplicata. Zucc. Obs. Cent. 1, n. 100.

Darlingtonia glandulosa. DC. Mem. Leg. 427; Ann. Sci. Nat. 1. 4. 98; Prodr. 2. 443. Hook. Comp. Bot. Mag. 1. 24. Eat. & Wr. 220.

Darlingtonia brachyloba, var. *glandulosa.* Torr. & Gray, Fl. 1. 401. Torrey, Nicol. Rep. 149.

D. depressus. Humb. & Bonpl.; Willd. Spec. 4. 1046. Kunth, Mim. 115, t. 35. DC. Prodr. 2. 445. Benth. Hook. Journ. Bot. 4. 357; Rev. Mim. 386, with syn. Torr. & Gray, Fl. 1. 403. Gray, Pl. Lindh. 184. Griseb. Fl. Brit. W. Ind. 218. Chapman, 117.

D. diffusus. Willd. Spec. 2. 1046. DC. Prodr. 2. 444. Torr. & Gray, Fl. 1. 403. Chapman, 117.

D. Jamesii. Torr. & Gray, Fl. 1. 402; Pac. R. Rep. 2. 164. Walp. Rep. 1. 864. Gray, Pl. Wright. 2. 51. Torrey, Mex. Bound. 60. Benth. Rev. Mim. 386.

Acacia Cooleyi. Eaton, Manual, 5 ed. 89. Eat. & Wr. 111.

Var. **Fendleri.**

D. Jamesii. Gray, Pl. Fendl. 38.

D. Jamesii, var. Gray, Pl. Wright. 1. 63 & 2. 51.

D. reticulatus, var. Benth. Rev. Mim. 387.

D. velutinus (?). Watson, Pl. Wheeler, 37.

D. leptolobus. Torr. & Gray, Fl. 1. 402. Benth. in Hook. Journ. Bot. 4. 357; Rev. Mim. 386. Walp. Rep. 1. 864. Gray, Hall's Pl. Texas, 8. Young, Fl. Texas, 248.

D. reticulatus. Benth. in Hook. Journ. Bot. 4. 357; Rev. Mim. 386. Walp. Rep. 1. 864. Gray, Pl. Lindh. 184; Pl. Wright. 1. 61 & 2. 51; Hall's Pl. Texas, 8.

D. rhombifolius. Buckley, Proc. Acad. Philad. 1861, 454; fide Gray, same, 1862, 163. Walp. Ann. 7. 828.

D. velutinus. Scheele, Linnæa, 21. 455. Gray, Pl. Lindh. 183; Pl. Wright. 1. 61 & 64, & 2. 51; Hall's Pl. Texas, 8. Walp. Ann. 2. 450. Torrey, Mex. Bound. 60. Benth. Rev. Mim. 386.

D. pedunculatus. Buckley, l. c. 454; fide Gray, l. c. 163. Walp. Ann. 7. 828.

D. virgatus. Willd. Spec. 4. 1047. See syn. in Benth. Rev. Mim. 385. — Benth. Bot. Sulph. 14. Griseb. Fl. Brit. W. Ind. 218. Chapman, 117.

D. strictus. Bertol.; DC. Prodr. 2. 245. Torr. & Gray, Fl. 1. 403. Young, Fl. Texas, 248.

DESMODIUM acuminatum. DC. Prodr. 2. 329. Hook. Fl. Bor.-Am. 1. 154; Comp. Bot. Mag. 1. 23. Don, Mill. 2. 291. Beck, Bot. 85. Darling. Fl. Cestr. 417. Torr. & Gray, Fl. 1. 358. Torrey, Fl. N. Y. 1. 176; Frem. Rep. 89. Dietr. 4. 1148. Lesqx. Fl. Ark. 356. Chapman, 102. Pl. Bourgeau, 256. Gray, Manual, 135.

Hedysarum grandiflorum. Walter, 185.

Hedysarum glutinosum. Willd. Spec. 3. 1198. Poir. Dict. 6. 411. Persoon, 2. 322. Pursh, 483. Spreng. Syst. 3. 313.

Hedysarum acuminatum. Michx. Fl. 2. 72. Poir. Dict. 6. 427. Pursh, 483. Bigel. Fl. Bost. 275. Elliott, 2. 209. Torrey, Compend. 269. Spreng. Syst. 3. 313. Eat. & Wr. 262.

D. grandiflorum. DC. Prodr. 2. 338. Don, Mill. 2. 291.

D. batocaulon. Gray, Pl. Wright. 2. 47. Walp. Ann. 4. 538.

D. Canadense. DC. Prodr. 2. 328. Torrey, Ann. Lyc. N. Y. 2. 179; Fl. N. Y. 1. 177; Nicol. Rep. 149; Pac. R. Rep. 4. 82. Hook. Fl. Bor.-Am. 1. 154; Bot. Mag. **t. 3553.** Don, Mill. 2. 290. Beck, Bot. 83. Spach, Hist. Veg. 3. 313. Torr. & Gray, Fl. 1. 359 & 365. Dietr. 4. 1148. Seem. Bot. Herald, 280. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 189. Lesqx. Fl. Ark. 356. Chapman, 103. Pl. Bourgeau, 256. Gray, Manual, 136. Buchan, Canad. Naturalist, 14. 293.

Hedysarum Canadense. Linn. Spec. 748. Hill, Veg. Syst. 21, **t. 37, f. 1.** Medicus, Bot. Beobacht. 1783, 180. Ait. Hort. Kew. 3. 64. Willd. Spec. 3. 1187; Enum. 777. Poir. Dict. 6. 419. Persoon, 2. 321. Pursh, 481. Bigelow, Fl. Bost. 275. Elliott, 2. 214. Spreng. Syst. 3. 313. Torrey, Compend. 267. Eat. & Wr. 261.

Hedysarum scabrum. Moench, Meth. 118.

Var. longifolium. Torr. & Gray, Fl. 1. 365.

D. canescens. DC. Prodr. 2. 328. Don, Mill. 2. 290. Beck, Bot. 84. Darling. Fl. Cestr. 415. Torr. & Gray, Fl. 1. 359 & 365; Pac. R. Rep. 2. 163. Torrey, Fl. N. Y. 1. 177. Dietr. 4. 1148. Lesqx. Fl. Ark. 356. Chapman, 102. Gray, Manual, 135. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 320.

Hedysarum canescens. Linn. Spec. 748, in part. Poir. Dict. 6. 417, in part. Persoon, 2. 326. Pursh, 482. Spreng. Syst. 3. 313. Torrey, Compend. 268. Eat. & Wr. 262.

Hedysarum viridiflorum. Willd. Spec. 3. 1192, not Linn. Michx. Fl. 2. 72. Poir. Dict. 6. 430. Persoon, 2. 322. Pursh, 482. Nutt. Genera, 2. 109. Torrey, Compend. 268. Spreng. Syst. 3. 313.

Hedysarum scaberrimum. Elliott, 2. 217. Hook. Comp. Bot. Mag. 1. 23.] & Wr. 263.

D. viridiflorum. DC. Prodr. 2. 329, excl. syn. Don, Mill. 2. 290.

D. Aikinianum. Beck, Bot. 84.

Hedysarum Aikini. Eaton, Manual, 7 ed. 166. Eat. & Wr. 272.

Var. **villosissimum.** Torr. & Gray, Fl. 1. 365.

D. Canadense, var. Hook. Comp. Bot. Mag. 1. 22.

D. ciliare. DC. Prodr. 2. 329. Don, Mill. 2. 290. Beck, Bot. 84. Hook. Co Bot. Mag. 1. 23. Darling. Fl. Cestr. 413. Torr. & Gray, Fl. 1. 362. Torrey N. Y. 1. 180. Dietr. 4. 1149. Bertol. Bot. Misc. 9. 16. Chapman, 104. G Manual, 137.

? *Hedysarum barbatum.* Walter, 184.

Hedysarum ciliare. Muhl.; Willd. Spec. 3. 1196. Poir. Dict. 6. 408. Pers 2. 322. Pursh, 482. Nutt. Genera, 2. 109. Elliott, 2. 212. Spreng. Syst. 3. Torrey, Compend. 268. Eat. & Wr. 262.

Hedysarum obtusum. Muhl.; Willd. Spec. 3. 1190. Poir. Dict. 6. 417. Pers 2. 321. Spreng. Syst. 3. 313. Torrey, Compend. 268. Eat. & Wr. 262.

? *Hedysarum coriaceum.* Poir. Dict. 6. 418; Suppl. 1. 416. Persoon, 2. 321.

? *Lespedeza coriacea.* Desv. in Ann. Sci. Nat. 1. 9. 417.

D. cinerascens. Gray, Pl. Wright. 2. 48. Walp. Ann. 4. 538. Torrey,] Bound. 57.

D. cuspidatum. Hook. Comp. Bot. Mag. 1. 23. Torr. & Gray, Fl. 1. 360. ' rey, Fl. N. Y. 1. 178; Pac. R. Rep. 4. 82. Dietr. 4. 1148. Chapman, 102. G Manual, 136.

Hedysarum cuspidatum. Muhl.; Willd. Spec. 3. 1198. Poir. Dict. 6. 427. soon, 2. 322. Pursh, 483. Bigel. Fl. Bost. 276. Spreng. Syst. 3. 313. Tor Compend. 269.

Hedysarum bracteosum. Michx. Fl. 2. 73. Poir. Dict. 6. 431. Persoon, 2. Pursh, 482. Elliott, 2. 213. Eat. & Wr. 262.

D. bracteosum. DC. Prodr. 2. 329. Hook. Fl. Bor.-Am. 1. 154. Don, Mill. 2. Beck, Bot. 85. Darling. Fl. Cestr. 416.

D. Dillenii. Darling. Fl. Cestr. 414. Torrey, Fl. N. Y. 1. 178. Torr. & Gray 1. 360 & 365. Gray, Pl. Fendl. 37; Manual, 136. Dietr. 4. 1148. Engelm Upp. Miss. 189. Chapman, 103.

Hedysarum Marilandicum. Willd. Spec. 3. 1189, not Linn.; Enum. 777. Dict. 6. 420. Persoon, 2. 321. Ait. f. Hort. Kew. 4. 342. Pursh, 482. El 2. 214. Spreng. Syst. 3. 312. Torrey, Compend. 268. Don, Mill. 2. 290. H Comp. Bot. Mag. 1. 23.

D. Marilandicum. DC. Prodr. 2. 328. Beck, Bot. 84.

D. Boottii. Torrey in Curtis, Pl. Wilmington.

D. Floridanum. Chapman, 102.

D. glabellum. DC. Prodr. 2. 329. Don, Mill. 2. 290. Hook. Comp. Bot. 1. 23. Torr. & Gray, Fl. 1. 361. Dietr. 4. 1149. Chapman, 103. Wood, Bc Fl. 89.

Hedysarum glabellum. Michx. Fl. 2. 73. Poir. Dict. 6. 418. Persoon, 2. Pursh, 482. Elliott, 2. 211. Eat. & Wr. 262.

D. Grahami. Gray, Pl. Wright. 2. 48. Walp. Ann. 4. 539. Torrey, M Bound. 56.

D. gramineum. Gray, Pl. Wright. 2. 46.

D. humifusum. Beck, Bot. 86. Torr. & Gray, Fl. 1. 364. Eat. & Wr. 262. Walp. Rep. 1. 741. Dietr. 4. 1149. Canby, Proc. Acad. Philad. 1864, 17; Torr. Bulletin, 5. 19. Gray, Manual, 135.

Hedysarum humifusum. Muhl. Cat. 69, in part.

D. Illinoense. Gray, Proc. Am. Acad. 8. 289; Hall's Pl. Texas, 7.

D. lævigatum. DC. Prodr. 2. 329. Don, Mill. 2. 290. Beck, Bot. 85. Torr. & Gray, Fl. 1. 361 & 695. Dietr. 4. 1149. Chapman, 103. Gray, Manual, 136.

Hedysarum lævigatum. Nutt. Genera, 2. 109. Elliott, 2. 215. Spreng. Syst. 3. 321. Torrey, Compend. 269. Eat. & Wr. 262.

Hedysarum rhombifolium. Elliott, 2. 216. Spreng. Syst. 4^2. 290. Eat. & Wr. 263.

D. rhombifolium. DC. Prodr. 2. 330. Don, Mill. 2. 291. Torr. & Gray, Fl. 1. 361. Dietr. 4. 1148.

D. lineatum. DC. Prodr. 2. 330. Don, Mill. 2. 291. Hook. Comp. Bot. Mag. 1. 23. Torr. & Gray, Fl. 1. 364. Dietr. 4. 1149. Chapman, 104. Gray, Manual, 137.

Hedysarum lineatum. Michx. Fl. 2. 72, not Linn. Pursh, 484. Elliott, 2. 218. Spreng. Syst. 4^2. 290. Eat. & Wr. 263.

D. Marylandicum. Boott; Darling. Fl. Cestr. 2 ed. 412, not DC. Torr. & Gray, Fl. 1. 361. Torrey, Fl. N. Y. 1. 179. Dietr. 4. 1149. Chapman, 104. Gray, Manual, 137.

Hedysarum Marylandicum. Linn. Spec. 748, in part. Hill, Veg. Syst. 21, **t. 37, f. 3.** Walter, 185. Eat. & Wr. 262.

Hedysarum obtusum. Pursh, 482. Elliott, 2. 212.

D. obtusum. DC. Prodr. 2. 329, excl. syn. Don, Mill. 2. 290. Beck, Bot. 84. Bertol. Bot. Misc. 9. 15.

D. molle. DC. Prodr. 2. 332. Griseb. Fl. Brit. W. Ind. 188. Chapman, 102, with doubt.

D. Neo-Mexicanum. Gray, Pl. Wright. 1. 53 & 2. 47. Walp. Ann. 4. 539. Torrey, Mex. Bound. 57. Referred doubtfully (with *D. Bigelovii*) to *D. spirale* by Benth. in Mart. Fl. Bras. 15^1. 105.

D. exiguum. Gray, Pl. Wright. 2. 46. Torrey, Mex. Bound. 57.

Var. **Bigelovii.**

D. Bigelovii. Gray, Pl. Wright. 2. 47. Walp. Ann. 4. 538. Referred to *D. spirale* by Grisebach, Fl. Brit. W. Ind. 188.

D. nudiflorum. DC. Prodr. 2. 330. Hook. Fl. Bor.-Am. 1. 154; Comp. Bot. Mag. 1. 23. Don, Mill. 2. 291. Beck, Bot. 85. Darling. Fl. Cestr. 418. Torr. & Gray, Fl. 1. 358. Torrey, Fl. N. Y. 1. 176. Dietr. 4. 1148. Engelm. Pl. Upp. Miss. 189. Gray, Pac. R. Rep. 12. 42; Manual, 135. Lesqx. Fl. Ark. 356. Chapman, 102.

Hedysarum nudiflorum. Linn. Spec. 749. Hill, Veg. Syst. 21, **t. 39, f. 1.** Walter, 185. Willd. Spec. 3. 1198. Michx. Fl. 2. 71. Poir. Dict. 6. 430. Persoon, 2. 322. Pursh, 483. Bigel. Fl. Bost. 275. Elliott, 2. 209. Spreng. Syst. 3. 317. Torrey, Compend. 269. Eat. & Wr. 262.

D. ochroleucum. M. A. Curtis; Canby, Proc. Acad. Philad. 1864, 17; Torr. Bulletin, 5. 20. Gray, Manual, 135. Wood, Bot. & Fl. 88.

Hedysarum humifusum. Muhl. Cat. 69, in part.

D. paniculatum. DC. Prodr. 2. 329. Don, Mill. 2. 291. Beck, Bot. 85. Hook. Comp. Bot. Mag. 1. 23. Darling. Fl. Cestr. 413. Torr. & Gray, Fl. 1. 363. Torrey, Fl. N. Y. 1. 180; Pac. R. Rep. 4. 82; Mex. Bound. 57. Dietr. 4. 1149. Engelm. Pl. Upp. Miss. 189. Lesqx. Fl. Ark. 357. Chapman, 103. Gray, Manual, 136.

Hedysarum paniculatum. Linn. Spec. 748. Hill, Veg. Syst. 21, t. **38**, f Walter, 185. Ait. Hort. Kew. 3. 65. Moench, Meth. 118. Willd. Spec. 3. 11 Enum. 778. Poir. Dict. 6. 413. Persoon, 2. 322. Pursh, 483. Elliott, 2. 210. Bi Fl. Bost. 276. Spreng. Syst. 3. 313. Torrey, Compend. 269. Eat. & Wr. 262.

Var. **angustifolium.** Torr. & Gray, Fl. 1. 364.

Var. **pubens.** Torr. & Gray, Fl. 1. 364.

D. pubens. Young, Fl. Texas, 233.

D. pauciflorum. DC. Prodr. 2. 330. Hook. Fl. Bor.-Am. 1. 155; Comp. 1 Mag. 1. 23. Don, Mill. 2. 291. Darling. Fl. Cestr. 417. Torr. & Gray, Fl. 1. Dietr. 4. 1148. Torrey, Pac. R. Rep. 4. 82. Chapman, 101. Gray, Manual, 13

Hedysarum pauciflorum. Nutt. Genera, 2. 109. Eat. & Wr. 262.

D. psilocarpum. Gray, Pl. Wright. 2. 48. Walp. Ann. 4. 539.

D. rigidum. DC. Prodr. 2. 330. Don, Mill. 2. 291. Darling. Fl. Cestr. Torr. & Gray, Fl. 1. 362. Torrey, Fl. N. Y. 1. 180. Dietr. 4. 1149. Chapman, Gray, Manual, 136.

Hedysarum rigidum. Elliott, 2. 215. Spreng. Syst. 4². 298. Eat. & Wr. 263

D. rotundifolium. DC. Prodr. 2. 330. Don, Mill. 2. 291. Beck, Bot. 86. ling. Fl. Cestr. 330. Torr. & Gray, Fl. 1. 364. Torrey, Fl. N. Y. 1. 181. D 4. 1149. Chapman, 103. Canby, Proc. Acad. Philad. 1864, 17. Gray, Manual,

Hedysarum rotundifolium. Michx. Fl. 2. 72. Poir. Dict. 6. 431. Persoon, 2. Pursh, 484. Bigel. Fl. Bost. 274. Elliott, 2. 213. Spreng. Syst. 3. 313. To Compend. 268. Eat. & Wr. 262.

Var. **glabratum.** Gray, Manual, 135.

Hedysarum humifusum. Muhl. Cat. 69, in part. Bigel. Fl. Bost. 274. Tor Compend. 268.

D. sessilifolium. Torr. & Gray, Fl. 1. 363. Walp. Rep. 1. 740. Dietr. 4. 1 Gray, Pl. Fendl. 37; Manual, 136. Torr. Marcy's Rep. 284. Young, Fl. Tex. 2

Hedysarum sessilifolium. Torrey; Curtis, Pl. Wilmington, 123, excl. var.

D. spirale. DC. Prodr. 2. 332. See syn. in Griseb. Fl. Brit. W. Ind. 188; Ben in Mart. Fl. Bras. 15¹. 105.

D. annuum. Gray, Pl. Wright. 2. 46. Walp. Ann. 4. 540. Torrey, M Bound. 56.

D. strictum. DC. Prodr. 2. 329. Don, Mill. 2. 291. Beck, Bot. 85. Hc Comp. Bot. Mag. 1. 23. Torr. & Gray, Fl. 1. 363. Dietr. 4. 1149. Chapman, Gray, Manual, 136.

Hedysarum strictum. Pursh, 483. Poir. Suppl. 5. 20. Nutt. Genera, 2. Elliott, 2. 210. Spreng. Syst. 3. 312. Torrey, Compend. 269. Eat. & Wr. 262.

Hedysarum paniculatum. Michx. Fl. 2. 74.

D. tenuifolium. Torr. & Gray, Fl. 1. 363. Walp. Rep. 1. 740. Dietr. 4. 1 Chapman, 103.

Hedysarum sessilifolium, var. *angustifolium.* Torrey; Curtis, Pl. Wilmington,

D. tortuosum. DC. Prodr. 2. 332. Griseb. Fl. Brit. W. Ind. 188, with syn.

D. stipulaceum. Moç. & Sesse, Icon. Fl. Mex. ined. t. **269.** DC. Prodr. 2. 3

D. uncinatum. DC. Prodr. 2. 331. See syn. in Griseb. Fl. Brit. W. Ind. Benth. in Mart. Fl. Bras. 15¹. 96.

Hedysarum uncinatum. Jacq. Hort. Schœnbr. 3, t. **298.**

D. Sinclairi. Benth. Bot. Sulph. 82.

D. Sonoræ. Gray, Pl. Wright. 2. 47. Walp. Ann. 4. 538.

D. viridiflorum. Beck, Bot. 84, not DC. Hook. Comp. Bot. Mag. 1. 23. Darling. Fl. Cestr. 415. Torr. & Gray, Fl. 1. 360 & 365. Walp. Rep. 1. 740. Torrey, Fl. N. Y. 1. 179. Dietr. 4. 1148. Chapman, 102. Gray, Manual, 136.

Hedysarum viridiflorum. Linn. Spec. 748. Hill, Veg. Syst. 21, **t. 38, f. 1.** Walter, 185. Ait. Hort. Kew. 3. 65. Elliott, 2. 217. Eat. & Wr. 262.

D. Wislizeni. Engelm.; Gray, Pl. Wright. 1. 53. Walp. Ann. 4. 539. (Northern Mexico.)

D. Wrightii. Gray, Pl. Lindh. 177; Pl. Wright. 1. 53; Hall's Pl. Texas, 7. Walp. Ann. 2. 414. Torrey, Mex. Bound. 57.

D. annuum; spirale.
Aikinianum; canescens.
Bigelovii; Neo-Mexicanum.
Boottii; Dillenii.
bracteosum; cuspidatum.
exiguum; Neo-Mexicanum.
grandiflorum; acuminatum.
Marilandicum; Dillenii.
D. obtusum; Marilandicum.
pubens; paniculatum.
repens; Lespedeza repens.
rhombifolium; lævigatum.
Sinclairi & *Sonoræ*; uncinatum.
spirale; Neo-Mexicanum.
stipulaceum; tortuosum.
viridiflorum; canescens.

DIOCLEA Boykinii. Gray in herb. Torrey.

Dolichos multiflorus. Torr. & Gray, Fl. 1. 281. Eat. & Wr. 227. **Chapman, 110.** Wood, Bot. & Fl. 98.

DOLICHOS Lablab, Linn. Perhaps only cultivated.

D. purpureus, Linn. Eat. & Wr. 227.
D. Halei. Wood, Bot. & Fl. 98.

D. angulosus; Phaseolus diversifolius.
helvolus; Phaseolus helvolus.
luteolus; Vigna glabra.
minimus; Rhynchosia minima.
multiflorus; Dioclea Boykinii.
D. parabolicus; Phaseolus helvolus.
polystachyos; Phaseolus perennis.
regularis; Galactia glabella.
vexillatus; Phaseolus helvolus.

ERVUM Lens, Linn. A. H. Smith, Proc. Acad. Philad. 1867, 19.

E. emarginatum; Vicia micrantha.
erectum; Galactia sessiliflora.
hirsutum; Vicia hirsuta.
multiflorum; Astragalus multiflorus.
E. pilosum; Vicia Ludoviciana.
tetraspermum; Vicia tetrasperma.
tridentatum; Vicia Ludoviciana.
volubile; Galactia glabella.

ERYTHRINA coralloides. Moç. & Sesse, Icon. Fl. Mex. ined. **t. 253.** DC. Prodr. 2. 413. Dietr. 4. 1185. Gray, Pl. Thurb. 301. Torrey, Mex. Bound. 50.

E. herbacea. Linn. Spec. 706. Hill, Veg. Syst. 29, **t. 51, f. 1.** Medicus, Bot. Beobacht. 1783, 185. Lam. Dict. 2. 390; Ill. t. **608, f. 2.** Walter, 180. Ait. Hort. Kew. 3. 8. Willd. Spec. 3. 912; Enum. 743. Michx. Fl. 2. 61. Sims, Bot. Mag. **t. 887.** Persoon, 2. 279. Pursh, 467. Nutt. Genera, 2. 92. Barton, Fl. N. Am. 1. 10, t. 3. Elliott, 2. 190. Lodd. Bot. Cab. **t. 851.** DC. Prodr. 2. 411. Spreng.

Syst. 3. 244. Don, Mill. 2. 370. Spach, Hist. Veg. 1. 354. Hook. Comp. Bot. 1
1. 24. Torr. & Gray, Fl. 1. 282. Eat. & Wr. 239. Dietr. 4. 1183. Cooper, Sr
son. Rep. 1860, 440. Chapman, 107. Wood, Bot. & Fl. 97. Gray, Hall's
Texas, 7.

Xyphanthus hederæfolius. Raf. Fl. Lud. 103.

E. hederæfolia. Spreng. Syst. 3. 244. Don, Mill. 2. 370. Dietr. 4. 1184.

EYSENHARDTIA amorphoides. HBK. Nov. Gen. 6. 489, **t. 592.** DC. P
2. 257. Dietr. 4. 1020. Gray, Pl. Lindh. 173; Pl. Wright. 1. 45 & 46; Hall'
Texas, 8. Torrey, Sitgr. Rep. 158; Mex. Bound. 51.

E. Drummondii. Torr. & Gray, Fl. 1. 690.

E. Texana. Scheele, Linnæa, 21. 462.

Var. **orthocarpa.** Gray, Pl. Wright. 2. 37.

E. spinosa. Engelm.; Gray, Pl. Lindh. 174. Walp. Ann. 2. 360.

GALACTIA brachypoda. Torr. & Gray, Fl. 1. 288. Eat. & Wr. 248. W
Rep. 1. 761. Dietr. 4. 1177. Chapman, 109. Wood, Bot. & Fl. 98.

G. canescens. Benth. Comm. Leg. Gen. 62. Torr. & Gray, Fl. 1. 288 &
Eat. & Wr. 248. Walp. Rep. 1. 761. Dietr. 4. 1176. Gray, Pl. Lindh. 171; Il
Pl. Texas, 7. Torrey, Mex. Bound. 50. Benth. & Hook. Gen. Pl. 1. 535.

Heterocarpæa Texana. Scheele, Linnæa, 21. 467.

G. Elliottii. Nutt. Genera, 2. 117. Elliott, 2. 240. DC. Prodr. 2. 239. Sp
Syst. 3. 257. Don, Mill. 2. 219. Torr. & Gray, Fl. 1. 289 & 687. Eat. & Wr.
Chapman, 109. Wood, Bot. & Fl. 98.

G. pinnata. Muhl. Cat. 67, not Pers.

Tephrosia (?) *Elliottii.* Benth. Comm. Leg. Gen. 63.

G. filiformis. Benth. Comm. Leg. Gen. 63. Griseb. Fl. W. Ind. 194, & syn
cluding *G. pilosa*, Nutt.

G. tenuiflora, Wight & Arn. Benth. in Mart. Fl. Bras. 15[1]. 143, & syn.

G. Floridana. Torr. & Gray, Fl. 1. 288. Eat. & Wr. 248. Walp. Rep. 1. 7
2. 532. Dietr. 4. 1176. Chapman, 108.

Var. **microphylla.** Chapman, 108.

G. glabella. Michx. Fl. 2. 62. Persoon, 2. 302. Pursh, 487. Nutt. Ge
2. 117. Elliott, 2. 239. DC. Prodr. 2. 238. Spreng. Syst. 3. 257. Desv. in
Sci. Nat. 1. 9. 413. Torrey, Compend. 271; Fl. N. Y. 1. 162. Don, Mill. 2.
Beck, Bot. 81. Torr. & Gray, Fl. 1. 287. Eat. & Wr. 248. Dietr. 4. 1176. C
man, 109. Gray, Manual, 142.

Dolichos regularis. Linn. Spec. 726. Hill, Veg. Syst. 21, **t. 19, f. 2.** W
Spec. 3. 1049. Poir. Suppl. 2. 499.

Ervum volubile. Walter, 187.

G. Pursh. Desv. in Ann. Sci. Nat. 1. 9. 413. Don, Mill. 2. 218.

G. heterophylla. Gray, Pl. Lindh. 171. Walp. Ann. 2. 421.

G. marginalis. Benth. Ann. Mus. Vind. 2. 126; Comm. Leg. Gen. 62; Mar
Bras. 15[1]. 141. Torr. & Gray, Fl. 1. 288 & 687. Eat. & Wr. 249. Dietr. 4.
Gray, Pl. Wright. 1. 44; Hall's Pl. Texas, 7. Torrey, Mex. Bound. 50.

Cologania (?) *heterophylla.* Gill.; Hook. & Arn. in Hook. Bot. Misc. 3. 181.

G. mollis. Michx. Fl. 2. 61. Persoon, 2. 302. Pursh, 486. Elliott, 2. 238.
& Gray, Fl. 1. 287. Eat. & Wr. 248. Dietr. 4. 1176. Chapman, 108. Ref
(under the name of *G. pilosa*, Nutt.) by Griseback, in Fl. Brit. W. Ind. 194,
filiformis, Benth., and by Benth., in Mart. Fl. Bras. 15[1]. 143, with *G. filiformis* t
villosa of *G. tenuiflora*, Wight & Arn. See syn. under both citations.

? *Hedysarum volubile.* Linn. Spec. 750. Hill, Veg. Syst. 21, **t. 43, f. 4.** Willd. Spec. 3. 1204. Poir. Dict. 6. 432. Ait. f. Hort. Kew. 4. 345.

G. pilosa. Nutt. Genera, 2. 116, fide Chapman. DC. Prodr. 2. 237. Spreng. Syst. 2. 257. Don, Mill. 2. 218.

G. pilosa. Elliott, 2. 238, not Nutt. Hook. Comp. Bot. Mag. 1. 22 ? Torr. & Gray, Fl. 1. 287. Eat. & Wr. 248. Walp. Rep. 1. 761. Dietr. 4. 1176. Chapman, 108. Wood, Bot. & Fl. 98. Gray, Hall's Pl. Texas, 7.

G. mollis. Nutt. Genera, 2. 117, fide Chapman. DC. Prodr. 2. 237. Spreng. Syst. 3. 257. Torrey, Compend. 271. Don, Mill. 2. 218. Beck, Bot. 81. Gray, Manual, 142; Hall's Pl. Texas, 7.

G. villosa. Eat. & Wr. 248.

Var. **Macræi.** Torr. & Gray, Fl. 1. 287.

G. Macræi. M. A. Curtis, Journ. Bost. Soc. Nat. Hist. 1. 120, excl. syn.

Var. **angustifolia.** Torr. & Gray, Fl. 1. 287.

G. sessiliflora. Torr. & Gray, Fl. 1. 288 & 687. Eat. & Wr. 249. Dietr. 4. 1177. Curtis, Am. Journ. Sci. 2. 7. 406. Chapman, 109. Wood, Bot. & Fl. 98.

Ervum erectum. Walter, 187.

Glycine stricta. Hook. Comp. Bot. Mag. 1. 22. Eat. & Wr. 256. Walp. Rep. 1. 760. Dietr. 4. 1175.

G. spiciformis. Torr. & Gray, Fl. 1. 288. Eat. & Wr. 248. Walp. Rep. 1. 761. Dietr. 4. 1176. Chapman, 108.

G. brevistyla. Schlecht. in Linnæa, 12. 288, fide Chapman. Dietr. 4. 1177. Referred to *G. filiformis* (or *tenuiflora*) by Grisebach and Bentham, ll. cc.

G. tephrodes. Gray, Pl. Wright. 2. 34. Walp. Ann. 4. 554. Torrey, Mex. Bound. 50.

G. Texana. Gray, Pl. Lindh. 170; Pl. Wright. 1. 45. Walp. Ann. 2. 421.

Lublab Texanus. Scheele, Linnæa, 21. 467.

G. Wrightii. Gray, Pl. Wright. 1. 44. Walp. Ann. 4. 554. Torrey, Mex. Bound. 51.

GENISTA TINCTORIA, Linn. Bigel. Fl. Bost. 267. Torrey, Compend. 262; Fl. N. Y. 1. 185. Beck, Bot. 77. Torr. & Gray, Fl. 1. 369. Eat. & Wr. 252. Gray, Manual, 126.

GLEDITSCHIA monosperma. Walter, 254. Michx. Fl. 2. 257. Schkuhr, Handb. 3. 555. Persoon, 2. 623. Willd. Spec. 4. 1097; Enum. 1058. Nouv. Duham. 4. 101. Ait. f. Hort. Kew. 5. 474. Michx. f. Arbr. Am. 3. 164, **t. 10.** Pursh, 221. Poir. Suppl. 2. 641. Elliott, 2. 709. DC. Prodr. 2. 479. Spreng. Syst. 3. 919. Don, Mill. 2. 428. Spach, Hist. Veg. 1. 98. Torr. & Gray, Fl. 1. 398. Eat. & Wr. 254. Loud. Arbor. 2. 653, **f. 364.** Dietr. 4. 539. Chapman, 115. Gray, Manual, 145.

G. triacanthos, var. (*monosperma*). Linn. Spec. 1057. Ait. Hort. Kew. 3. 444.

G. aquatica. Marsh. Arbust. 54.

G. Caroliniensis. Lam. Dict. 2. 465; Ill. 3. 447, **t. 857, f. 2.** Roem. & Schult. Syst. 7. 74.

G. triacantha. Gaertn. Fruct. t. 146, not Linn.

G. triacanthos. Linn. Spec. 1056, excl. var. Medicus, Bot. Beobacht. 1782, 230. Lam. Dict. 2. 465; Ill. **t. 857, f. 1.** Ait. Hort. Kew. 3. 444, excl. vars. Moench, Meth. 69. Michx. Fl. 2. 257. Schkuhr, Handb. 3. 554, **t. 356.** Persoon, 2. 123. Willd. Spec. 4. 1097; Enum. 1058. Nouv. Duham. 4. 100, **t. 25.** Michx. f. Arbr. Am. 3. 164, **t. 10.** Pursh, 221. Nutt. Genera, 2. 239. James, Long's Exped. 1. 317.

Elliott, 2. 709. Guimp. Otto & Hayne, t. 131. DC. Prodr. 2. 479. S
3. 918. Torrey, Compend. 375; Fl. N. Y. 1. 192. Audubon, Birds,
150. Roem. & Schult. Syst. 7. 73. Don, Mill. 2. 428. Beck, Bot.
Hist. Veg. 1. 92. Torr. & Gray, Fl. 1. 398. Eat. & Wr. 254. Loud. A
t. 90 & 91. Dietr. 4. 539. Engelm. Pl. Upp. Miss. 190. Gray, F
12. 42; Manual, 145. Curtis, Bot. N. Car. 49. Chapman, 115. Hunt
ralist, 1. 433.

G. spinosa. Marsh. Arbust. 54.

G. Meliloba. Walter, 254.

G. elegans. Salisb. Prodr. Stirp. 323.

Melilobus heterophylla. Raf. Sylv. Tellur. 121.

Var. **inermis.** Pursh, 221. DC. Mem. Leg. t. 22, f. 109. Torr.
1. 398. Loud. Arbor. 2. 650, t. 92 & 93.

Var. **brachycarpos.** Michx. Fl. 2. 257. Torr. & Gray, Fl. 1. 398.

G. brachycarpa. Pursh, 221. DC. Prodr. 2. 479. Spreng. Syst. 3.
Mill. 2. 428. Eat. & Wr. 254. Loud. Arbor. 2. 653. Dietr. 4. 539.

GLYCINE *angulata* & *angulosa*; Phaseolus diversifolius.

Apios; Apios tuberosa.

bracteata; Amphicarpæa monoica.

Caribæa; Rhynchosia Caribæa.

Caroliniana; Rhynchosia tomentosa.

comosa & *elliptica*; Amphicarpæa monoica.

erecta; Rhynchosia tomentosa.

filosa; Amphicarpæa monoica.

frutescens; Wistaria frutescens.

helvola; Phaseolus helvolus.

heterocarpa & *monoica*; Amphicarpæa monoica.

G. mollissima; Rhynchosia
monophylla; Rhynchosia
parabolica & *peduncularis* helvolus.
pedunculosa; Phaseolus
reflexa; Rhynchosia min
reniformis; Rhynchosia t
sarmentosa; Amphicarpæ
simplicifolia; Rhynchosis
stricta; Galactia sessilifl
tomentosa; Rhynchosia t
umbellata; Phaseolus hel
Virginica; Phaseolus div

GLYCYRRHIZA lepidota. Pursh, 480. Poir. Suppl. 4. 656. N
2. 106. Sims, Bot. Mag. t. 2150. James, Cat. 178; Long's Exped. 2.
Prodr. 2. 247. Spreng. Syst. 3. 201. Torrey, Ann. Lyc. N. Y. 2. 178;
147; Frem. Rep. 88; Emory's Rep. 138 & 408; Sitgr. Rep. 158; Marcy
Pac. R. Rep. 4. 79; Mex. Bound. 53; Bot. Wilkes, 268. Hook. Fl. Bor.
Lond. Journ. Bot. 6. 207. Don, Mill. 2. 227. Torr. & Gray, Fl. 1. 2
Wr. 256. Dietr. 4. 1042. Gray, Pl. Fendl. 31; Pl. Wright. 1. 50 &
Acad. Philad. 1863, 61; Manual, 134; Proc. Am. Acad. 8. 380. Parr
611. Engelm. Pl. Upp. Miss. 188. Newberry, Pac. R. Rep. 6. 71. C
12. 41. Durand, Fl. Utah, 162. Pl. Bourgeau, 255; Porter, Hayd. Re
1871, 480; Fl. Col. 31. Watson, King's Rep. 5. 78; Pl. Wheeler,
Hayd. Rep. 1872, 764. Rothr. Pl. Wheeler, 36. Brew. & Wats. Bot. C

Liquiritia lepidota. Nutt. in Fras. Cat. 1813.

G. glabra. Torrey, Emory's Rep. 408.

Var. **glutinosa.** Watson, Bot. Calif. 1. 144.

G. glutinosa. Nutt.; Torr. & Gray, Fl. 1. 298. Eat. & Wr. 256.
1. 672. Dietr. 4. 1042.

GYMNOCLADUS Canadensis. Lam. Dict. 1. 733; Ill. 3. 412, t. 8
Fl. 2. 241, t. 51. Persoon, 2. 626. Ait. f. Hort. Kew. 5. 400. Michx.

2. 272, t. 23. Pursh, 304. Nutt. Genera, 2. 243. James, Long's Exped. 1. 321. Reichenb. Mag. Bot. t. 40. DC. Prodr. 2. 480. Spreng. Syst. 2. 327. Torrey, Compend. 376; Ann. Lyc. N. Y. 2. 193; Fl. N. Y. 1. 196; Emory's Rep. 407. Hook. Fl. Bor.-Am. 1. 166. Don, Mill. 2. 429. Beck, Bot. 93. Spach, Hist. Veg. 1. 89. Torr. & Gray, Fl. 1. 398. Eat. & Wr. 258. Loud. Arbor. 2. 656, t. 99 & 100. Richard. Arct. Exped. 424. Engelm. Pl. Upp. Miss. 190. Gray, Manual, 145. Briot, Rev. Hort. 1870, 436.

Guilandina dioica. Linn. Spec. 381. Marsh. Arbust. 56. Ait. Hort. Kew. 2. 56.

HEDYSARUM boreale. Nutt. Genera, 2. 110; Journ. Acad. Philad. 7. 19. DC. Prodr. 2. 343. Spreng. Syst. 3. 314. Hook. Fl. Bor.-Am. 1. 155. Don, Mill. 2. 302. Beck, Bot. 86. Hook. & Arn. Bot. Beechey, 122. Torr. & Gray, Fl. 1. 356. Ledeb. Fl. Ross. 1. 707. Dietr. 4. 1158. Seem. Bot. Herald, 28 & 51. Engelm. Pl. Upp. Miss. 189. Torrey, Pac. R. Rep. 4. 82. Hook. f. in Journ. Linn. Soc. 1. 121 & 124; Arct. Pl. 289. Pl. Bourgeau, 256. Rothr. Alask. 445. Gray, Manual, 134. Matthew, Pl. Acadia, 15. Coulter, Hayd. Rep. 1872, 764.

H. alpinum, var. *Americanum.* Michx. Fl. 2. 74. Poir. Dict. 6. 440. Pursh, 484. Torrey, Compend. 269. Eat. & Wr. 262.

H. alpinum. Richard. Frankl. Journ. 17.

H. Mackenzii. Richard. Frankl. Journ. 17. Hook. Fl. Bor.-Am. 1. 155. Don, Mill. 2. 302. Torr. & Gray, Fl. 1. 357. Walp. Rep. 1. 746. Eat. & Wr. 263. Dietr. 4. 1158. Seem. Bot. Herald, 51. Torrey, Stansb. Rep. 385. Hook. f. Journ. Linn. Soc. 1. 121 & 124; Arct. Pl. 289. Pl. Bourgeau, 256. Rothr. Alask. 445. Watson, King's Rep. 5. 78 & 419; Pl. Wheeler, 7. Porter, Hayd. Rep. 1871, 480; Fl. Col. 31. Coulter, Hayd. Rep. 1872, 764.

H. boreale. Richard. Frankl. Journ. 1 ed. 745. Durand, Fl. Utah, 162.

H. canescens. Nutt.; Torr. & Gray, Fl. 1. 357. Walp. Rep. 1. 746. Dietr. 4. 1158. Hook. in Lond. Journ. Bot. 6. 215.

H. dasycarpum. Turcz.; Ledeb. Fl. Ross. 1. 706, fide Regel & Tiling, Fl. Ajan, 79.

H. acuminatum; Desmodium acuminatum.
Aikini; Desmodium canescens.
alpinum; boreale.
barbatum; Desmodium ciliare.
bracteosum; Desmodium cuspidatum.
Canadense; Desmodium Canadense.
canescens; Mackenzii, Desmodium canescens.
ciliare; Desmodium ciliare.
conglomeratum; Lespedeza capitata.
coriaceum; Desmodium ciliare.
cuspidatum; Desmodium cuspidatum.
dasycarpum; Mackenzii.
divergens; Lespedeza violacea.
frutescens; L. violacea & capitata.
glabellum; Desmodium glabellum.
glutinosum & *grandiflorum;* Desmodium acuminatum.
hirtum; Lespedeza hirta.
H. humifusum; Desmodium humifusum, ochroleucum & rotundifolium.
junceum; Lespedeza reticulata.
lævigatum; Desmodium lævigatum.
Lespedeza; Lespedeza repens.
lineatum; Desmodium lineatum.
Marilandicum: Desmodium Marilandicum & Dillenii.
nudiflorum; Desmodium nudiflorum.
obtusum; D. ciliare & Marilandicum.
paniculatum; Desmodium paniculatum & strictum.
pauciflorum; D. pauciflorum.
prostratum; Lespedeza repens.
repens; Lespedeza repens.
reticulatum; Lespedeza reticulata.
rhombifolium; Desmodium lævigatum.
rigidum: Desmodium rigidum.
rotundifolium; D. rotundifolium.

H. scaberrimum; Desmodium canescens.
scabrum; Desmodium Canadense.
sessiliflorum; Lespedeza reticulata.
sessilifolium; Desmodium sessilifolium & tenuifolium.
strictum; Desmodium strictum.
tetraphyllum; Zornia tetraphylla.
umbellatum; Lespedeza capitata.
H. uncinatum; Desmodium uncinat
violaceum; Lespedeza violacea
ticulata.
Virginicum; Æschynomene hispi
viridiflorum; Desmodium viridifl
& canescens.
volubile; Galactia mollis.

HOFFMANSEGGIA brachycarpa. Gray, Pl. Wright. 1. 55, 57 & 2 Walp. Ann. 4. 592. Torr. & Gray, Pac. R. Rep. 2. 163.

H. caudata. Gray, Pl. Lindh. 179; Pl. Wright. 1. 54. Walp. Ann. 2. 443. rey, Mex. Bound. 58. Young, Fl. Texas, 243.

H. drepanocarpa. Gray, Pl. Wright. 1. 58 & 2. 50. Walp. Ann. 4. 593. & Gray, Pac. R. Rep. 2. 163. Torrey, Pac. R. Rep. 4. 82. Porter, Fl. Col. 33

H. Drummondii. Torr. & Gray, Fl. 1. 393. Walp. Rep. 1. 811. Gra Wright. 1. 55. Young, Fl. Texas, 243.

H. gladiata. Benth.; Gray, Pl. Wright. 1. 57. Walp. Ann. 4. 593. (Mex.)

H. Jamesii. Torr. & Gray, Fl. 1. 393. Gray, Pl. Lindh. 178; Pl. Fend Pl. Wright. 1. 54 & 2. 49; Ives's Rep. 11. Engelm. in Wisliz. Rep. 4 & 9. T Marcy's Rep. 284, t. 4; Pac. R. Rep. 4. 82; Mex. Bound. 58. Torr. & Gray, R. Rep. 2. 126 & 163. Young, Fl. Texas, 243. Porter, Fl. Col. 33.
Pomaria glandulosa. Torrey, Ann. N. Y. Lyc. 2. 193. Eat. & Wr. 370.
Pomaria Jamesii. Walp. Rep. 1. 811.

H. melanosticta. Gray, Pl. Wright. 1. 54. Torrey, Mex. Bound. 58. Ben Hook. Gen. Pl. 1. 567.
Pomaria melanosticta. Schauer, Linnæa, 20. 748. Walp. Ann. 1. 257.

H. microphylla. Torrey, Mex. Bound. 58.

H. oxycarpa. Benth.; Gray, Pl. Wright. 1. 55 & 2. 50. Walp. Ann. 4. 592. rey, Mex. Bound. 58.

H. platycarpa. Benth.; Gray, Pl. Wright. 1. 57 (Mex.)

H. stricta. Benth.; Gray, Pl. Wright. 1. 56 & 2. 50. Walp. Ann. 4. 593. rey, Pac. R. Rep. 7. 10; Mex. Bound. 58.

Var. **demissa.** Gray, Pl. Wright. 1. 56 & 2. 50. Torr. & Gray, Pac. R. 2. 163. Torrey, Pac. R. Rep. 4. 82; Mex. Bound. 58.
H. densiflora. Benth.; Gray, Pl. Wright. 1. 55. Seem. Bot. Herald, 281. V Ann. 4. 593.

HOMALOBUS. See under *Astragalus.*

H. brachycarpus & canescens; A. cæspitosus.
decumbens; A. campestris.
H. dispar; A. multiflorus.
orthocarpus; A. junceus.
tenuifolius; A. campestris.

HOSACKIA angustifolia. Don, Mill. 2. 200. Walp. Rep. 2. 855. Seem. Herald, 279. Gray, Syn. Hos. in Proc. Acad. Philad. 1863, 349; Proc. Am. A 8. 626. Watson, King's Rep. 5. 434.
H. Mexicana. Benth. in Linn. Trans. 17. 365.
Indigofera (?) *hippocrepoides.* Schlecht. in Linnæa, 12. 283. Walp. Rep. 1.

H. argophylla. Gray, Pl. Thurb. 316; Ives's Rep. 9; Syn. 347. Walp.

4. 477. Torrey, Bot. Mex. 55. Watson, King's Rep. 5. 62 & 433; Proc. Am. Acad. 11. 114. Brew. & Wats. Bot. Calif. 1. 138.

H. argentea. Kellogg, Proc. Calif. Acad. 3. 38, **f. 8.**

Var. **Fremontii.** Gray, Syn. 347. Watson, King's Rep. 5. 62.

H. bicolor. Dougl.; Benth. in Bot. Reg. 15, **t. 1257**; Linn. Trans. 17. 365; Pl. Hartw. 304. Hook. Fl. Bor.-Am. 1. 134. Don, Mill. 2. 200. Torr. & Gray, Fl. 1. 322. Hook. & Arn. Bot. Beechey, 137. Eat. & Wr. 273. Walp. Rep. 1. 648. Durand, Pl. Pratten. 85. Torrey, Pac. R. Rep. 4. 79; Mex. Bound. 54; Bot. Wilkes, 272. Newberry, Pac. R. Rep. 6. 71. Cooper, same, 12. 58. Gray, Syn. 350; Proc. Am. Acad. 8. 380 & 626. Boland. Cat. 9. Watson, King's Rep. 5. 434. Brew. & Wats. Bot. Calif. 1. 135.

Lotus pinnatus. Hook. Bot. Mag. **t. 2913.**

Rafinesquia (or *Flundula*) *comosa.* Raf. Fl. Tellur. 2. 96.

H. brachycarpa. Benth. Pl. Hartw. 306. Walp. Ann. 2. 358. Durand, Pl. Pratten. 85. Torrey, Mex. Bound. 55. Gray, Syn. 352. Boland. Cat. 9. Watson, King's Rep. 5. 435. Brew. & Wats. Bot. Calif. 1. 137.

Lotus brachycarpus. Benth. & Hook. Gen. Pl. 1. 490.

H. crassifolia. Benth. in Linn. Trans. 17. 365. Torr. & Gray, Fl. 1. 323. Hook. & Arn. Bot. Beechey, 332. Eat. & Wr. 274. Walp. Rep. 1. 644. Dietr. 4. 1011. Gray, Syn. 350; Proc. Am. Acad. 8. 380 & 626. Boland. Cat. 9. Watson, King's Rep. 5. 434. Brew. & Wats. Bot. Calif. 1. 135.

H. stolonifera. Lindl. Bot. Reg. 23, **t. 1977.** Torr. & Gray, Fl. 1. 323. Eat. & Wr. 274. Walp. Rep. 1. 648. Dietr. 4. 1011. Torrey, Pac. R. Rep. 4. 79. Bolander, Cat. 9.

H. platycarpa. Nutt.; Torr. & Gray, Fl. 1. 323. Eat. & Wr. 273. Walp. Rep. 1. 648. Dietr. 4. 1011.

H. cytisoides. Benth. in Linn. Trans. 17. 366; Pl. Hartw. 306. Torr. & Gray, Fl. 1. 324. Hook. & Arn. Bot. Beechey, 332. Eat. & Wr. 274. Walp. Rep. 1. 649. Dietr. 4. 1011. Torrey, Pac. R. Rep. 4. 79 & 7. 10; Mex. Bound. 55. Gray, Syn. 347. Boland. Cat. 9. Watson, King's Rep. 5. 433. Brew. & Wats. Bot. Calif. 1. 138.

H. decumbens. Benth. in Bot. Reg. 15, under t. 1257; Linn. Trans. 17. 366. Hook. Fl. Bor.-Am. 1. 134; Lond. Journ. Bot. 6. 210. Don, Mill. 2. 200. Torr. & Gray, Fl. 1. 324. Hook. & Arn. Bot. Beechey, 137. Eat. & Wr. 273. Walp. Rep. 1. 649. Dietr. 4. 1011. Newberry, Pac. R. Rep. 6. 71. Cooper, same, 12. 58. Gray, Syn. 347; Proc. Am. Acad. 8. 380. Torrey, Bot. Wilkes, 274. Watson, King's Rep. 5. 433. Brew. & Wats. Bot. Calif. 1. 318.

Var. **Nevadensis.** Watson, Bot. Calif. 1. 318.

H. Heermanni. Anderson, Pl. Nev. 119. Watson, King's Rep. 5. 63, in part.

H. glabra. Torrey, Bot. Wilkes, 274. Brew. & Wats. Bot. Calif. 1. 137.

Syrmatium glabrum. Vogel, Linnæa, 10. 591. Dietr. 4. 1013.

H. scoparia. Nutt.; Torr. & Gray, Fl. 1. 325. Eat. & Wr. 274. Walp. Rep. 1. 649. Benth. Pl. Hartw. 306. Torrey, Pac. R. Rep. 7. 10; Mex. Bound. 55. Gray, Ives's Rep. 9; Proc. Bost. Soc. Nat. Hist. 7. 146; Syn. 346. Boland. Cat. 9. Watson, King's Rep. 5. 433.

Var. **diffusa.** Gray, Syn. 346.

H. crassifolia. Nutt.; Torr. & Gray, Fl. 1. 325 & 692. Eat. & Wr. 274. Walp. Rep. 1. 649. Dietr. 4. 1012.

H. gracilis. Benth. in Linn. Trans. 17. 365. Torr. & Gray, Fl. 1. 323. Hook. & Arn. Bot. Beechey, 332. Eat. & Wr. 274. Walp. Rep. 1. 648. Dietr. 4. 1011.

Newberry, Pac. R. Rep. 6. 71. Torrey, Mex. Bound. 54, t. **15**; Bot. Wilkes, Gray, Syn. 350; Proc. Am. Acad. 8. 380 & 626. Boland. Cat. 9. Watson, Ki Rep. 5. 434. Brew. & Wats. Bot. Calif. 1. 135.

H. grandiflora. Benth. in Linn. Trans. 17. 366. Torr. & Gray, Fl. 1. 323 & Hook. & Arn. Bot. Beechey, 332. Eat. & Wr. 274. Walp. Rep. 1. 649. D 4. 1011. Durand, Pl. Pratten. 86. Torrey, Pac. R. Rep. 4. 79. Gray, Syn. Boland. Cat. 9. Watson, King's Rep. 5. 434; Proc. Am. Acad. 11. 114. Bre Wats. Bot. Calif. 1. 316.

H. ochroleuca. Nutt.; Torr. & Gray, Fl. 1. 323. Eat. & Wr. 274. Walp. 1. 648. Dietr. 4. 1011.

H. Heermanni. Durand. & Hilg. in Journ. Acad. Philad. 2. 3. 39; Pac. R. 5. 6, t. **4.** Gray, Syn. 348. Walp. Ann. 7. 705. Watson, King's Rep. 5. part, & 433. Brew. & Wats. Bot. Calif. 1. 139.

H. incana. Torrey, Pac. R. Rep. 4. 79, t. **4.** Gray, Syn. 349; Proc. Am. 8. 626. Watson, King's Rep. 5. 434. Brew. & Wats. Bot. Calif. 1. 134.

H. juncea. Benth. in Linn. Trans. 17. 366. Torr. & Gray, Fl. 1. 325. Ho Arn. Bot. Beechey, 332. Eat. & Wr. 274. Walp. Rep. 1. 649. Dietr. 4. Torrey, Mex. Bound. 55; Bot. Wilkes, 274. Gray, Syn. 346. Boland. Watson, King's Rep. 5. 433. Brew. & Wats. Bot. Calif. 1. 138.

H. maritima. Nutt.; Torr. & Gray, Fl. 1. 326. Eat. & Wr. 275. Walp 1. 650. Dietr. 4. 1012. Gray, Syn. 351. Boland. Cat. 9. Watson, King's 5. 434. Brew. & Wats. Bot. Calif. 1. 136.

H. micrantha. Nutt.; Torr. & Gray, Fl. 1. 324. Eat. & Wr. 274. Walp 1. 649. Dietr. 4. 1011. Gray, Syn. 348. Boland. Cat. 9. Watson, King's 5. 433. Torrey, Bot. Wilkes, 274? Brew. & Wats. Bot. Calif. 1. 138.

H. oblongifolia. Benth. Pl. Hartw. 305. Newberry, Pac. R. Rep. 6. 71? rey, Mex. Bound. 54. Walp. Ann. 2. 358. Gray, Syn. 350; Proc. Am. 8. 626. Watson, King's Rep. 5. 434. Brew. & Wats. Bot. Calif. 1. 135.

Var. **angustifolia.** Watson, Bot. Calif. 1. 135.

H. lathyroides. Durand. & Hilg. in Journ. Acad. Philad. 2. 3. 38; Pac. R. 5. 6, t. **3.** Gray, Syn. 349; Proc. Am. Acad. 8. 626. Walp. Ann. 7. 706. W King's Rep. 5. 434.

H. parviflora. Benth. in Bot. Reg. 15, under t. 1257. Hook. Fl. Bor.-Am. 1 Don, Mill. 2. 200. Torr. & Gray, Fl. 1. 325. Eat. & Wr. 273. Walp. Rep. 1 Dietr. 4. 1012. Torrey, Pac. R. Rep. 4. 79; Bot. Wilkes, 273. Cooper, Pac. R. 12. 58. Gray, Syn. 351; Proc. Am. Acad. 8. 380. Boland. Cat. 9. Watson, K Rep. 5. 434. Brew. & Wats. Bot. Calif. 1. 136.

Lotus micranthus. Benth. Linn. Trans. 17. 367. Hook. & Arn. Bot. Beechey,

H. prostrata. Nutt.; Torr. & Gray, Fl. 1. 325. Eat. & Wr. 274. Walp. 1. 649. Dietr. 4. 1011. Gray, Syn. 348. Boland. Cat. 9. Watson, King's 5. 433. Brew. & Wats. Bot. Calif. 1. 138.

? *H. decumbens*, var. *glabriuscula.* Hook. & Arn. Bot. Beechey, 137.

H. puberula. Benth. Pl. Hartw. 305. Walp. Ann. 2. 358. Seem. Bot. He 279. Gray, Pl. Wr. 1. 50; Ives's Rep. 9; Syn. 349. Torrey, Pac. R. Rep. 7 t. **4.** Watson, King's Rep. 5. 419 & 433. Rothrock, Pl. Wheeler, 36. Bre Wats. Bot. Calif. 1. 136.

H. Purshiana. Benth. in Bot. Reg. under t. 1257; Pl. Hartw. 306. Don, 2. 200. Torr. & Gray, Fl. 1. 327. Hook. & Arn. Bot. Beechey, 137. Walp. 1. 650. Torrey, Nicol. Rep. 148; Sitgr. Rep. 175; Pac. R. Rep. 4. 79; Bot. Wil

273. Dietr. 4. 1012. Hook. in Lond. Journ. Bot. 6. 210. Gray, Pl. Fendl. 33; Pl. Wright. 2. 42; Pac. R. Rep. 12. 42; Proc. Bost. Soc. Nat. Hist. 7. 146; Am. Journ. Sci. 2. 33. 411; Proc. Acad. Philad. 1863, 60; Syn. 352; Proc. Am. Acad. 8. 380. Engelm. Pl. Upp. Miss. 189. Durand, Pl. Pratten. 85. Dur. & Hilg. in Pac. R. Rep. 5. 7. Newberry, same, 6. 71. Cooper, same, 12. 51. Chapman, 91. Anderson, Cat. Pl. Nev. 119. Boland. Cat. 9. Porter, Hayd. Rep. 1870, 474; Fl. Col. 21. Watson, King's Rep. 5. 63 & 434; Pl. Wheeler, 7. Brew. & Wats. Fl. Calif. 1. 137.

Lotus sericeus. Pursh, 489. Poir. Suppl. 5. 721. Seringe, DC. Prodr. 2. 211. Benth. in Linn. Trans. 17. 368. Benth. & Hook. Gen. Pl. 1. 490.

Trigonella Americana. Nutt. Genera, 2. 120. Seringe, DC. Prodr. 2. 185. James, Cat. 178. Torrey, Ann. Lyc. N. Y. 2. 174.

H. unifoliolata. Hook. Fl. Bor.-Am. 1. 135. Don, Mill. 2. 469. Walp. Rep. 1. 649. Eat. & Wr. 273. Dietr. 4. 1012.

Acmispon sericeum. Raf. New. Fl. 1. 53.

H. elata, floribunda & mollis. Nutt.; Torr. & Gray, Fl. 1. 327. Eat. & Wr. 273. Walp. Rep. 1. 650. Dietr. 4. 1012.

H. pilosa. Nutt.; Torr. & Gray, Fl. 1. 327 & 692. Eat. & Wr. 273. Walp. Rep. 1. 650.

Lotus (?) ***unifoliolatus.*** Benth. in Linn. Trans. 17. 368.

Lotus Americanus. Bischof, Del. Sem. h. Heidelb. 1839 (Litt.-Ber. zu Linnæa, 14. 132).

Trigonella sericea. Eat. & Wr. 459.

H. rigida. Bentham, Pl. Hartw. 305. Walp. Ann. 2. 358. Gray, Syn. 348. Bolander, Cat. 9. Watson, King's Rep. 5. 433. Parry, Am. Naturalist, 9. 269. Brew. & Wats. Bot. Calif. 1. 316.

H. pubernla. Gray, Pl. Wright. 2. 42, not Benth. Torrey, Pac. R. Rep. 4. 79; Mex. Bound. 55.

H. sericea. Benth. in Linn. Trans. 17. 367. Torr. & Gray, Fl. 1. 325. Hook. & Arn. Bot. Beechey, 332. Eat. & Wr. 274. Walp. Rep. 1. 649. Dietr. 4. 1012. Gray, Syn. 347. Boland. Cat. 9. Watson, King's Rep. 5. 433. Brew. & Wats. Bot. Calif. 1. 138.

H. stipularis. Benth. in Linn. Trans. 17. 365. Torr. & Gray, Fl. 1. 323. Hook. & Arn. Bot. Beechey, 332. Eat. & Wr. 274. Walp. Rep. 1. 648. Dietr. 4. 1011. Gray, Syn. 349; Proc. Am. Acad. 8. 626. Boland. Cat. 9. Watson, King's Rep. 5. 434. Brew. & Wats. Bot. Calif. 1. 134.

H. macrophylla. Kellogg, Proc. Calif. Acad. 2. 123.

H. balsamifera. Kellogg, same, 2. 125, f. **40**. Gray, Syn. 352.

H. strigosa. Nutt.; Torr. & Gray, Fl. 1. 326. Eat. & Wr. 274. Walp. Rep. 1. 650. Dietr. 4. 1012. Torrey, Pac. R. Rep. 4. 79 & 7. 10; Mex. Bound. 54. Gray, Syn. 351. Boland. Cat. 9. Watson, King's Rep. 5. 434. Brew. & Wats. Bot. Calif. 1. 137.

H. microphylla, nudiflora & rubella. Nutt.; Torr. & Gray, Fl. 1. 326. Eat. & Wr. 273. Walp. Rep. 1. 650. Dietr. 4. 1012.

H. maritima. Torrey, Mex. Bound. 55. Gray, Ives's Rep. 9.

H. subpinnata. Torr. & Gray, Fl. 1. 326 & 692. Eat. & Wr. 275. Walp. Rep. 1. 650. Dietr. 4. 1012. Benth. Pl. Hartw. 306. Torrey, Pac. R. Rep. 4. 79; Mex. Bound. 55; Bot. Wilkes, 273. Newberry, Pac. R. Rep. 6. 71. Gray, Syn. 352. Boland. Cat. 9. Watson, King's Rep. 5. 63 & 435. Parry, Am. Naturalist, 9. 269. Brew. & Wats. Bot. Calif. 1. 137.

Lotus subpinnatus. Lagasca, Gen. & Sp. 23. Don, Mill. 2. 196. Benth. in Lindl. Trans. 17. 367. Hook. & Arn. Bot. Beechey, 17, t. 8, & 332. Gay, Fl. Chil. 2. 178. Benth. & Hook. Gen. Pl. 1. 490.

Anthyllis Chilensis. DC. Prodr. 2. 171.

Lotus Macræi. Benth. in Linn. Trans. 17. 367.

Lotus Wrangeliana. Fisch. & Meyer, Ind. Sem. h. Petersb. 1835, 16 (Litt.-Ber. zu Linnæa, 1837, 110; Ann. Sci. Nat. 2. 5. 183). Hook. Comp. Bot. Mag. 2. 8.

Anisolotus anthylloides & Wrangeliana. Bernh. Sel. Sem. h. Erf. 1837.

H. Wrangeliana. Torr. & Gray, Fl. 1. 326. Eat. & Wr. 275. Walp. Rep. 1. 650. Dietr. 4. 1012.

H. tomentosa. Hook. & Arn. Bot. Beechey, 137 & 332. Benth. in Linn. Trans. 17. 366. Torr. & Gray, Fl. 1. 324 & 692. Eat. & Wr. 274. Walp. Rep. 1. 649. Gray, Pl. Thurb. 317; Syn. 347. Torrey, Mex. Bound. 55; Bot. Wilkes, 27. Boland. Cat. 9. Watson, King's Rep. 5. 433. Brew. & Wats. Bot. Calif. 1. 139.

Syrmatium tomentosum. Vogel, Linnæa, 10. 591. Dietr. 4. 1013.

H. Torreyi. Gray, Proc. Am. Acad. 8. 625. Brew. & Wats. Bot. Calif. 1. 135.

Var. **Nevadensis.** Gray, l. c.

H. Wrightii. Gray, Pl. Wright. 2. 42; Syn. 349. Torrey, Sitgr. Rep. 158; Mex Bound. 55. Walp. Ann. 4. 477. Watson, King's Rep. 5. 433. Brandegee, Fl. S. W. Col. 234. Brew. & Wats. Bot. Calif. 1. 136.

H. argentea; argophylla.
balsamifera; stipularis.
crassifolia; glabra.
decumbens; prostrata.
elata & floribunda; Purshiana.
Heermanni; decumbens.
lathyroides; oblongifolia.
macrophylla; stipularis.
maritima; strigosa.
Mexicana; angustifolia.
microphylla; strigosa.
H. mollis; Purshiana.
nudiflora; strigosa.
ochroleuca; grandiflora.
pilosa; Purshiana.
platycarpa; crassifolia.
puberula; rigida.
rubella; strigosa.
scoparia; glabra.
stolonifera; crassifolia.
unifolioluta; Purshiana.
Wrangeliana; subpinnata.

INDIGOFERA Anil, Linn. Chapman, 96. Ravenel, Torr. Bot. Bull. 6. 93.

I. Caroliniana. Walter, 187. Michx. Fl. 2. 68. Persoon, 2. 328. Poir. Suppl. 3. 145. Pursh, 488. Elliott, 2. 244. DC. Prodr. 2. 229. Spreng. Syst. 3. 278. Don, Mill. 2. 211. Torr. & Gray, Fl. 1. 298 & 688. Eat. & Wr. 283. Dietr. 4. 1040. Neisler, Am. Journ. Sci. 2. 24. 288. Chapman, 96. Benth. in Mart. Fl. Bras. 15[1]. 42. Wood, Bot. & Fl. 95.

I. leptosepala. Nutt.; Torr. & Gray, Fl. 1. 298. Eat. & Wr. 283. Walp. Rep. 1. 670. Engelm. & Gray, Pl. Lindh. 6. Dietr. 4. 1040. Scheele, Roem. Texas, 429. Torrey, Marcy's Rep. 283; Pac. R. Rep. 4. 80; Mex. Bound. 51. Gray, Pl. Wright. 1. 45 & 2. 37; Hall's Pl. Texas, 7. Chapman, 96. Wood, Bot. & Fl. 95. Watson, Pl. Wheeler, 8.

Indigofera, n. sp. Torrey, Ann. Lyc. N. Y. 2. 176.

I. tinctoria. Hook. Comp. Bot. Mag. 1. 22.

I. cinerea & Texana. Buckley, Proc. Acad. Philad. 1861, 451; fide Gray, same, 1862, 162.

Lindheimeriana. Scheele, Linnæa, 21. 464. Walp. Ann. 2. 363. Gray, Pl. Wright. 1. 45. Torrey, Mex. Bound. 51. Benth. in Mart. Fl. Bras. 15[1]. 42.

A. Anil, var. *polyphylla*. Gray, Pl. Lindh. 172.

sphærocarpa. Gray, Pl. Wright. 2. 37. Walp. Ann. 4. 487. Benth. l. c.

TINCTORIA, Linn. Chapman, 96.

LATHYRUS Engelmanni. Bischof, Del. Sem. h. Heidelb. 1839 (Litt.-Ber. zu Linnæa, 14. 132). Walp. Rep. 1. 719. Dietr. 4. 1118. Watson, Proc. Am. Acad. 11. 133.

L. littoralis. Endl. Gen. Pl. 1279. Walp. Rep. 1. 722. Dietr. 4. 1115. Watson, Proc. Am. Acad. 11. 134. Brew. & Wats. Bot. Calif. 1. 160.

Astrophia littoralis. Nutt.; Torr. & Gray, Fl. 1. 278. Eat. & Wr. 150.

Orobus littoralis. Gray, Pac. R. Rep. 4. 77. Cooper, same, 12. 58, **t. 6.** Torrey, Bot. Wilkes, 268.

L. maritimus. Bigel. Fl. Bost. 2 ed. 268. Audubon, Birds, **t. 191.** Torr. & Gray, Fl. 1. 273. Eat. & Wr. 292. Torrey, Fl. N. Y. 1. 157; Bot. Wilkes, 266. Dietr. 4. 1114. Seem. Bot. Herald, 28. Lange, Pl. Grönl. 135. Hook. Fl. Antarct. 1. 260; Arct. Pl. 289. Cooper, Pac. R. Rep. 38 & 58. Pl. Bourgeau, 256. Rothr. Fl. Alask. 445. Matthew, Pl. Acad. 21. Gray, Manual, 139. Trautvetter, Trudi Peterb. 3. 66. Watson, Proc. Am. Acad. 11. 133. Brew. & Wats. Bot. Calif. 1. 158.

Pisum maritimum. Linn. Spec. 727. Willd. Spec. 3. 1071. Poir. Dict. 5. 456. Pursh, 470. Nutt. Genera, 2. 95. Richard. Journ. Frankl. 17. Seringe, DC. Prodr. 2. 368. Spreng. Syst. 3. 257. Torrey, Compend. 263. Cham. in Linnæa, 6. 547. Beck, Bot. 90. Bongard, Veg. Sitch. 130. Schlecht. Fl. Lab. in Linnæa, 10. 100. Ledeb. Fl. Ross. 1. 661, with syn.

L. venosus. Sweet, Brit. Fl. Gard. 2 ser. **t. 37.**

L. Californicus. Dougl.; Lindl. Bot. Reg. 14, **t. 1144.** Don, Mill. 2. 333. Dietr. 4. 1114.

L. pisiformis. Hook. Fl. Bor.-Am. 1. 158. Don, Mill. 2. 333. Hook. & Arn. Bot. Beechey, 123.

Orobus maritimus. Reichenb. Fl. Exc. 538. Alefeld, Bonplandia, 9. 144.

L. Nevadensis. Watson, Proc. Am. Acad. 11. 133. Brew. & Wats. Bot. Calif. 1. 160.

L. polymorphus. Hook. in Lond. Journ. Bot. 6. 207.

L. venosus, var. *obovatus.* Torrey, Pac. R. Rep. 4. 77.

L. ochroleucus. Hook. Fl. Bor.-Am. 1. 159; Lond. Journ. Bot. 6. 207. Don, Mill. 2. 333. Gray, Ann. Lyc. N. Y. 3. 225; Manual, 139. Torr. & Gray, Fl. 1. 275. Eat. & Wr. 292. Walp. Rep. 1. 721. Torrey, Fl. N. Y. 1. 157, **t. 22.** Dietr. 4. 1114. Parry, Pl. Minn. 610. Seem. Bot. Herald, 51. Hook. f. Arct. Pl. 289. Pl. Bourgeau, 256. Watson, Proc. Am. Acad. 11. 133.

L. pisiformis. Richard. Journ. Frankl. 17.

L. glaucifolius. Beck, Bot. 90.

L. albidus. Eaton, Manual.

Orobus ochroleucus. A. Braun, Ind. Sem. h. Berl. 1853. Alefeld, Bonplandia, 9. 146.

L. ornatus. Nutt.; Torr. & Gray, Fl. 1. 277. Eat. & Wr. 293. Walp. Rep. 1. 721. Torrey, Nicol. Rep. 147. Dietr. 4. 1115. Hook. in Lond. Journ. Bot. 6. 207. Engelm. in Wisliz. Rep. 5. Gray, Am. Journ. Sci. 2. 33. 410; Proc. Acad. Philad. 1863, 60. Watson, King's Rep. 5. 79; Proc. Am. Acad. 11. 134. Porter, Hayd. Rep. 1871, 481. Brew. & Wats. Bot. Calif. 1. 160.

L. polymorphus. Torrey, Ann. Lyc. N. Y. 2. 180.

L. paluster. Linn. Spec. 733. See syn. in Ledeb. Fl. Ross. 1. 686; Trautvet Trudi Peterb. 3. 65. —Michx. Fl. 2. 66. Pursh, 471. Bigel. Fl. Bost. 2 ed. Spreng. Syst. 3. 264. Torrey, Compend. 263; Fl. N. Y. 1. 158; Nicol. Rep. 147; Wilkes, 267. Hook. Fl. Bor.-Am. 1. 161. Beck, Bot. 90. Torr. & Gray, Fl. 1. Hook. & Arn. Bot. Beechey, 335. Eat. & Wr. 292. Walp. Rep. 1. 721. Parry, Minn. 610. Seem. Bot. Herald, 28. Cooper, Pac. R. Rep. 12. 51 & 58. Hool Arct. Pl. 289. Pl. Bourgeau, 256. Matthew, Pl. Acad. 20. Gray, Manual, Porter, Hayd. Rep. 1870, 475; 1871, 481; Fl. Col. 32. Watson, King's Rep. 5 & 419; Pl. Wheeler, 8; Proc. Am. Acad. 11. 134. Coulter, Hayd. Rep. 1872, Rothr. Pl. Wheeler, 36. Brew. & Wats. Bot. Calif. 1. 159.

L. polymorphus. Gray, Ives's Rep. 10, in part.

L. Lanszwertii. Kellogg, Proc. Calif. Acad. 2. 150, **fig. 44.**

Var. **myrtifolius.** Gray, Pl. Fendl. 30; Struct. Bot. 412, **fig. 796–799**; P Acad. Philad. 1863, 60; Manual, 139. Porter, Hayd. Rep. 1871, 481. Cou same, 1872, 764. Watson, Proc. Am. Acad. 11. 134. Brew. & Wats. Bot. C 1. 159.

L. myrtifolius. Muhl.; Willd. Spec. 3. 1091. Persoon, 2. 305. Poir. Su 2. 776. Pursh, 471. James, Cat. 186. Seringe, DC. Prodr. 2. 371. Torrey, C pend. 263; Ann. Lyc. N. Y. 2. 180; Fl. N. Y. 1. 158; Sitgr. Rep. 158. Hook. Bor.-Am. 1. 160. Don, Mill. 2. 334. Beck, Bot. 90. Torr. & Gray, Fl. 1. Eat. & Wr. 292. Dietr. 4. 1114. Gray, Manual, 1 ed. 94. Chapman, 99. W Bot. & Fl. 86.

L. stipulaceus. LeConte, Torr. Cat. Pl. N. Y. 92. Seringe, DC. Prodr. 2. Hook. Fl. Bor.-Am. 1. 160. Don, Mill. 2. 333.

L. decaphyllus, var. *minor.* Hook. & Arn. Bot. Beechey, 138.

L. venosus, var. *δ.* Torr. & Gray, Fl. 1. 274. Durand, Pl. Pratten. 85; Fl. U 161. Torrey, Pac. R. Rep. 4. 77. Gray, Proc. Am. Acad. 8. 381. Watson Wheeler, 8.

Orobus myrtifolius. Alefeld, Bot. Zeit. 18. 162; Bonplandia, 9. 145.

L. polyphyllus. Watson, King's Rep. 5. 78. Porter, Hayd. Rep. 1871, 481. C ter, same, 1872, 764.

L. pubescens. Nutt.; Porter, Fl. Col. 32.

Var. (**angustifolius**). Gray, Pl. Wright. 2. 32. Torrey, Sitgr. Rep. 157; Bound. 49.

L. polymorphus. Nutt. Genera, 2. 96. Spreng. Neue Entdeck. 1. 289. Seri DC. Prodr. 2. 371. Don, Mill. 2. 334. Torr. & Gray, Fl. 1. 277. Nees, Pl. Neu-W 8. Dietr. 4. 1114. Gray, Pl. Fendl. 30; Pl. Wright. 2. 32; Pac. R. Rep. 12. 41; I Rep. 10, in part; Proc. Acad. Philad. 1863, 60. Engelm. Pl. Upp. Miss. 188. rey, Sitgr. Rep. 157; Pac. R. Rep. 4. 77; Mex. Bound. 49. Porter, Fl. Co Watson, Pl. Wheeler, 8; Proc. Am. Acad. 11. 134. Brew. & Wats. Bot. C 1. 160.

L. decaphyllus. Pursh, 471. Poir. Suppl. 5. 691. Bradbury, Cat. 337. Ja Long's Exp. 1. 63. Don, Mill. 2. 333. Eat. & Wr. 293.

Vicia stipulacea. Pursh, 739. Poir. Suppl. 5. 472. Bradbury, Cat. 337.

L. myrtifolius. Spreng. Syst. 3. 264.

Orobus polymorphus. Alefeld, Bonplandia, 9. 146.

L. polyphyllus. Nutt.; Torr. & Gray, Fl. 1. 274. Eat. & Wr. 292. Walp. 1. 720. Dietr. 4. 1114. Durand, Fl. Utah, 161 ? Cooper, Pac. R. Rep. 1 Gray, Proc. Am. Acad. 8. 381. Watson, same, 11. 133. Brew. & Wats. Bot. C 1. 159.

L. PRATENSIS, Linn. Gray, Manual, 140.

L. pusillus. Elliott, 2. 223. Seringe, DC. Prodr. 2. 371. Torr. & Gray, Fl. 1. 273. Eat. & Wr. 293. Walp. Rep. 1. 719. Dietr. 4. 1118. Chapman, 99. Wood, Bot. & Fl. 85. Gray, Hall's Pl. Texas, 7. Watson, Proc. Am. Acad. 11. 133.

L. sulphureus. Brewer; Gray, Proc. Am. Acad. 7. 399. Watson, same, 11. 133. Brew. & Wats. Bot. Calif. 1. 159.

L. ochroleucus, var. Torrey, Pac. R. Rep. 4. 77.

L. Torreyi. Gray, Proc. Am. Acad. 7. 337 & 8. 380. Boland. Cat. 10. Torrey, Bot. Wilkes, 267. Watson, Proc. Am. Acad. 11. 134. Brew. & Wats. Bot. Calif. 1. 160.

L. (?) *villosus.* Torrey, Cooper, Pac. R. Rep. 4. 58.

L. venosus. Muhl.; Willd. Spec. 3. 1092. Persoon, 2. 305. Poir. Suppl. 2. 776. Pursh, 471. Bigelow, Fl. Bost. 167. Nutt. Genera, 2. 96. Seringe, DC. Prodr. 2. 371. Spreng. Syst. 3. 264. Torrey, Compend. 263; Nicol. Rep. 147; Pac. R. Rep. 7. 9?; Mex. Bound. 49? Hook. Fl. Bor.-Am. 1. 160; Lond. Journ. Bot. 6. 207? Sweet, Brit. Fl. Gard. 2 ser. t. **37.** Beck, Bot. 90. Don, Mill. 2. 333. Torr. & Gray, Fl. 1. 274. Eat. & Wr. 292. Walp. Rep. 1. 720. Dietr. 4. 1114. Parry, Pl. Minn. 610. Engelm. Pl. Upp. Miss. 188. Gray, Pac. R. Rep. 12. 41; Manual, 139. Cooper, Pac. R. Rep. 12. 58. Chapman, 99. Pl. Bourgeau, 256. Watson, Proc. Am. Acad. 11. 133. Brew. & Wats. Bot. Calif. 1. 159.

L. decaphyllus. Hook. Fl. Bor.-Am. 1. 159; Bot. Mag. t. **3123.**

Orobus venosus. A. Braun, Ind. Sem. h. Berl. 1853.

Orobus Muhlenbergii. Alefeld, Bonplandia, 9. 146.

L. ochroleucus. Torrey, Bot. Wilkes, 267.

Var. **Californicus.** Watson, Proc. Am. Acad. 11. 133. Brew. & Wats. Bot. Calif. 1. 159.

L. venosus. Benth. Pl. Hartw. 307. Boland. Cat. 10.

? *L. decaphyllus.* Hook. & Arn. Bot. Beechey, 138.

L. venosus, var. Torrey, Pac. R. Rep. 4. 76. Durand, Pl. Pratten, 85.

? *Orobus Californicus.* Alefeld, Bonplandia, 9. 146.

L. vestitus. Nutt.; Torr. & Gray, Fl. 1. 276. Eat. & Wr. 292. Walp. Rep. 1. 721. Dietr. 4. 1114. Torrey, Pac. R. Rep. 4. 76 & 7. 9; Mex. Bound. 49. Boland. Cat. 10. Watson, Proc. Am. Acad. 11. 134. Brew. & Wats. Bot. Calif. 1. 159.

L. strictus. Nutt.; Torr. & Gray, Fl. 1. 276. Eat. & Wr. 293. Walp. Rep. 1. 721. Dietr. 4. 1114.

? *L. venosus*, var. Durand, Pl. Pratten. 85.

L. venosus, var. *grandiflorus.* Torrey, Pac. R. Rep. 4. 77.

L. maritimus. Torrey, Mex. Bound. 49.

Orobus vestitus. Alefeld, Bonplandia, 9. 145.

L. albidus; ochroleucus.
Americanus; Baptisia perfoliata.
Californicus; maritimus.
decaphyllus; paluster, polymorphus & venosus.
diffusus & dissitifolius; Vicia Americana.
glaucifolius; ochroleucus.
Lanszwertii; paluster.
linearis; Vicia Americana.
maritimus; vestitus.
L. myrtifolius; paluster & polymorphus.
ochroleucus; sulphureus & venosus.
pisiformis; maritimus & ochroleucus.
polymorphus; Nevadensis, ornatus & paluster.
polyphyllus, pubescens & stipulaceus; paluster.
strictus; vestitus.
venosus, maritimus, Nevadensis, paluster & vestitus.
villosus; Torreyi.

LESPEDEZA angustifolia. Elliott, 2. 206. DC. Prodr. 2. 349. Spreng. Syst. 3. 202. Torrey, Compend. 266. Beck, Bot. 87. Don, Mill. 2. 308. Eat. & Wr. 298. Gray, Proc. Am. Acad. 12. 57.

L. capitata, var. *angustifolia*. Pursh, 480. Torr. & Gray, Fl. 1. 368. Gray, Manual, 138; Am. Journ. Sci. 3. 7. 153. Maxim. Syn. 379 & 380, referring it mostly to *L. hirta*, var.

L. capitata. Michx. Fl. 2. 71. Persoon, 2. 318. Pursh, 480. Nutt. Genera, 2. 108. DC. Prodr. 2. 349. Bigelow, Fl. Bost. 2 ed. 272. Spreng. Syst. 3. 202. Beck, Bot. 87. Don, Mill. 2. 308. Hook. Comp. Bot. Mag. 1. 23. Torr. & Gray, Fl. 1. 368. Eat. & Wr. 298. Torrey, Fl. N. Y. 1. 184; Frem. Rep. 88; Pac. R. Rep. 4. 82. Dietr. 4. 1162. Gray, Pl. Fendl. 37; Manual, 138; Proc. Am. Acad. 12. 57. Bertol. Bot. Misc. 9. 14. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 189. Chapman, 101. Maximowicz, Syn. Lesped. in Act. Hort. Petrop. 2. 380.

? *Hedysarum umbellatum*. Walter, 184.

Hedysarum frutescens. Willd. Spec. 3. 1193, not Linn. Ait. f. Hort. Kew, 4. 343. Bigelow, Fl. Bost. 169.

Hedysarum conglomeratum. Poir. Dict. 6. 416.

L. fruticosa. Persoon, 2. 318. Spreng. Syst. 3. 202.

Hallia conglomerata. Poir. Suppl. 3. 3.

L. frutescens. Elliott, 2. 206. Torrey, Compend. 266. Beck, Bot. 87. Don, Mill. 2. 308. Darlington, Fl. Cestr. 421. Eat. & Wr. 298.

Var. **longifolia.** Torr. & Gray, Fl. 1. 368. Maxim. Syn. 380.

L. longifolia. DC. Prodr. 2. 349. Don, Mill. 2. 308. Eat. & Wr. 298.

Var. **sericea.** Hook. Comp. Bot. Mag. 1. 23. Maxim. Syn. 380.

L. hirta. Elliott, 2. 207. Torrey, Compend. 267; Fl. N. Y. 1. 183. Torr. & Gray, Fl. 1. 368. Eat. & Wr. 298. Dietr. 4. 1162. Engelm. Pl. Upp. Miss. 189. Gray, Pac. R. Rep. 12. 42; Manual, 138; Proc. Am. Acad. 12. 57. Lesqx. Fl. Ark. 357. Chapman, 101. Maxim. Syn. 379.

Hedysarum hirtum. Linn. Spec. 748. Walter, 185. Willd. Spec. 3. 1193. Poir. Dict. 6. 409. Ait. f. Hort. Kew. 4. 344. Bigelow, Fl. Bost. 170.

L. polystachya. Michx. Fl. 2. 71, **t. 40.** Persoon, 2. 318. Pursh, 480. DC. Prodr. 2. 349. Bigelow, Fl. Bost. 2 ed. 272. Spreng. Syst. 3. 202. Hook. Fl. Bor.-Am. 1. 156. Beck, Bot. 87. Don, Mill. 2. 308. Darlington, Fl. Cestr. 421.

Hallia hirta. Poir. Suppl. 3. 3.

Var. **angustifolia.** Maxim. Syn. 379.

L. leptostachya. Engelm.; Gray, Proc. Am. Acad. 12. 57.

L. repens. Barton, Prodr. Fl. Philad. 2. 77? Beck, Bot. 88. Torr. & Gray, Fl. 1. 367. Eat. & Wr. 298. Torrey, Fl. N. Y. 1. 182. Gray, Pl. Fendl. 37; Manual, 137; Hall's Pl. Texas, 7; Am. Journ. Sci. 3. 7. 153. Walp. Ann. 3. 850. Lesqx. Fl. Ark. 357. Chapman, 100. Maxim. Syn. 363.

Hedysarum repens. Linn. Spec. 749. Hill, Veg. Syst. 21, **t. 39, fig. 2.** Walter, 185. Willd. Spec. 3. 1201. Poir. Dict. 6. 425. Persoon, 2. 322. Spreng. Syst. 3. 318.

H. prostratum. Muhl.; Willd. Spec. 3. 1200. Poir. Dict. 6. 428. Persoon, 2. 232.

H. Lespedeza. Poir. Dict. 6. 415.

L. procumbens. Michx. Fl. 2. 70, **t. 39.** Persoon, 2. 318. Pursh, 481. Nutt. Genera, 2. 108. Elliott, 2. 207. DC. Prodr. 2. 350. Spreng. Syst. 3. 203. Torrey, Compend. 267; Fl. N. Y. 1. 182. Beck, Bot. 88. Don, Mill. 2. 308. Darling. Fl. Cestr. 422. Torr. & Gray, Fl. 1. 366. Eat. & Wr. 298. Lesqx. Fl. Ark. 357. Gray, Manual, 137. Wood, Bot. & Fl. 90.

Hallia Lespedeza. Poir. Suppl. 3. 3.

L. prostrata. Pursh, 481. Nutt. Genera, 2. 108. Elliott, 2. 208. DC. Prodr. 2. 350. Bigelow, Fl. Bost. 2 ed. 274. Spreng. Syst. 3. 203. Torrey, Compend. 267. Hook. Fl. Bor.-Am. 1. 156; Comp. Bot. Mag. 1. 23. Beck, Bot. 88. Don, Mill. 2. 308.

Desmodium repens. DC. Prodr. 2. 338. Don, Mill. 2. 291.

L. STRIATA, Hook. & Arn. Gray, Am. Naturalist, 1. 495; Am. Journ. Sci. 3. 7. 153. Porter, Am. Naturalist, 2. 39.

L. reticulata. Persoon, 2. 318. Nutt. Genera, 2. 107. DC. Prodr. 2. 348. Spreng. Syst. 3. 202. Torrey, Compend. 267. Hook. Fl. Bor.-Am. 1. 156. Beck, Bot. 86. Bertol. Bot. Misc. 9. 13. Maxim. Syn. 365.

Hedysarum violaceum. Linn. Spec. 749, in part. Walter, 185. Willd. Spec. 3. 1195.

H. reticulatum. Willd. Spec. 3. 1194. Poir. Dict. 6. 415. Bigel. Fl. Bost. 170.

H. sessiliflorum. Poir. Dict. 6. 414. Curtis, Journ. Bost. Soc. 1. 123.

L. sessiliflora. Michx Fl. 2. 70, in part. Pursh, 481. Nutt. Genera, 2. 107. Elliott, 2. 204. Bigel. Fl. Bost. 2 ed. 273. DC. Prodr. 2. 349. Spreng. Syst. 3. 202. Torrey, Compend. 267. Beck, Bot. 86. Darling. Fl. Cestr. 420. Eat. & Wr. 298.

Hallia reticulata & sessiliflora. Poir. Suppl. 3. 3.

L. violacea. Elliott, 2. 205.

L violacea, var. *sessiliflora.* Don, Mill. 2. 307. Torr. & Gray, Fl. 1. 367. Torrey, Fl. N. Y. 1. 183; Mex. Bound. 57. Chapman, 101. Gray, Manual, 137.

L. violacea, var. *reticulata.* Don, Mill. 2. 307. Chapman, 101.

Var. **angustifolia.** Maxim. Syn. 366.

Medicago Virginica. Linn. Spec. 778. Hill, Veg. Syst. 22, **t. 46, fig. 1.** Desrous. in Lam. Dict. 3. 628.

Hedysarum junceum. Walter, 185.

Hedysarum reticulatum. Muhl.; Willd. Spec. 3. 1194.

L. sessiliflora. Michx. Fl. 2. 70, in part.

Hallia juncea. Poir. Suppl. 3. 3.

L. frutescens. DC. Prodr. 2. 349, excl. syn.

L. angustifolia. Hook. Comp. Bot. Mag. 1. 23. Darling. Fl. Cestr. 420.

L. violacea, var. *angustifolia.* Torr. & Gray, Fl. 1. 367. Torrey, Fl. N. Y. 1. 183. Gray, Manual, 137.

L. Stuvei. Nutt. Genera, 2. 107. Elliott, 2. 204. DC. Prodr. 2. 349. Spreng. Syst. 3. 202. Torrey, Compend. 266. Beck, Bot. 87. Don, Mill. 2. 308. Hook. Comp. Bot. Mag. 1. 23. Darling. Fl. Cestr. 422. Torr. & Gray, Fl. 1. 367; Pac. R. Rep. 2. 163. Eat. & Wr. 298. Walp. Rep. 1. 748. Dietr. 4. 1162. Chapman, 101. Gray, Manual, 137. Maxim. Syn. 360.

L. Nuttallii. Darling. Fl. Cestr. 2 ed. 420.

L. violacea. Persoon, 2. 318. Pursh, 481. Nutt. Genera, 2. 108. Bigel. Fl. Bost. 2 ed. 273. DC. Prodr. 2. 350. Spreng. Syst. 3. 202. Torrey, Compend. 267; Fl. N. Y. 1. 183. Beck, Bot. 87. Hook. Comp. Bot. Mag. 1. 23. Don, Mill. 2. 307. Torr. & Gray, Fl. 1. 367, excl. vars. Eat. & Wr. 298. Dietr. 4. 1162. Lesqx. Fl. Ark. 357. Chapman, 100. Gray, Manual, 137. Maxim. Syn. 362. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 321.

Hedysarum violaceum. Linn. Spec. 749, excl. syn. Hill, Veg. Syst. 21, **t. 38, fig. 3.** Ait. Hort. Kew. 3. 65. Poir. Dict. 6. 415. Bigel. Fl. Bost. 171.

Hedysarum frutescens. Linn. Spec. 749. Walter, 185.

Æschynomene frutescens. Poir. in Lam. Dict. 4. 451.

Hedysarum divergens. Muhl.; Willd. Spec. 3. 1196. Poir. Dict. 6. 415. Bigel. Fl. Bost. 171.

Hallia frutescens & violacea. Poir. Suppl. 3. 3.

L. divergens. Pursh, 481. Bigel. Fl. Bost. 2 ed. 273. Elliott, 2. 205. DC. Prodr. 2. 350. Eat. & Wr. 208.

L. violacea, var. *divergens.* Don, Mill. 2. 307.

L. angustifolia; capitata & reticulata.
coriacea; Desmodium ciliare.
cytisoides; Rhynchosia galactioides.
divergens; violacea.
frutescens; capitata & reticulata.

L. fruticosa & longifolia; **capitata.**
Nuttallii; Stuvei.
polystachya; **hirta.**
procumbens & prostrata; **repens.**
sessiliflora & violacea; **reticulata.**

LEUCÆNA retusa. Benth. in Gray, Pl. Wright. 1. 64; Rev. Mim. in Linn. Trans. 30. 443. Gray, Pl. Wright. 2. 53. Walp. Ann. 4. 617. Torrey, Mex. Bound. 61.

Acacia Sabeana. Buckley, Proc. Acad. Philad. 1861, 453; fide Gray in same, 1862, 163.

LOTUS. See under *Hosackia.*

L. Americanus; H. Purshiana.
Macræi; H. subpinnata.
micrantha; H. parviflora.
pinnatus; H. bicolor.

L. sericeus & unifoliolatus; **H. Purshiana.**
Wrangeliana; **H. subpinnata.**

LUPINUS affinis. Agardh, Syn. Lup. 20, in part. Torr. & Gray, Fl. 1. 376. Hook. & Arn. Bot. Beechey, 335. Walp. Rep. 1. 600. Dietr. 4. 940. Lindl. Journ. Hort. Soc. Lond. 3. 312. Boland. Cat. 8. Watson, Rev. Lup. in Proc. Am. Acad. 8. 535. Brew. & Wats. Bot. Calif. 1. 122.

? *L. cervinus.* Kellogg, Proc. Calif. Acad. 2. 229, **fig. 73.**

L. albicaulis. Dougl.; Hook. Fl. Bor.-Am. 1. 165. Don, Mill. 2. 366. Agardh, Syn. 29. Torr. & Gray, Fl. 1. 378. Eat. & Wr. 307. Walp. Rep. 1. 602. Dietr. 4. 942. Durand, Pl. Pratten. 86. Boland. Cat. 8. Watson, Rev. Lup. 527. Torrey, Bot. Wilkes, 280. Brew. & Wats. Bot. Calif. 1. 118.

L. Mexicanus. Torrey, Sitgr. Rep. 158, not Lag.

L. laxiflorus. Torrey, Pac. R. Rep. 4. 81, not Dougl.

L. foliosus. Nutt.; Gray, Proc. Am. Acad. 8. 379.

Var. **Bridgesii.** Watson, Rev. Lup. 527. Brew. & Wats. Bot. Calif. 1. 119.

L. Andersoni. Watson, King's Rep. 5. 58; Rev. Lup. 531. Brew. & Wats. Bot. Calif. 1. 120.

Var. (?) **Grayi.** Watson, Rev. Lup. 531. Brew. & Wats. l. c.

L. arboreus. Sims, Bot. Mag. t. 682. Persoon, 2. 294. Willd. Enum. 752. Ait. f. Hort. Kew. 4. 287. Poir. Suppl. 3. 520. DC. Prodr. 2. 409. Spreng. Syst. 3. 226. Don, Mill. 2. 368. Spach, Hist. Veg. 1. 353. Agardh, Syn. 25. Lindl. Bot. Reg. 24, t. 32. Walp. Rep. 1. 601. Dietr. 4. 941. Benth. Pl. Hartw. 303. Torrey, Mex. Bound. 57; Bot. Wilkes, 281. Boland. Cat. 8. Watson, Rev. Lup. 523. Brew. & Wats. Bot. Calif. 1. 117.

L. sericeus. Esch. in Mem. Acad. Petersb. 10. 289 (Litt.-Ber. zu Linnæa, 1828, 151), not Pursh.

L. arboreus, var. *odoratissimus*. Fisch. & Mey. in Ind. Sem. h. Petrop. 2. 16.

L. rivularis. Agardh, Syn. 24. Torr. & Gray, Fl. 1. 376, chiefly. Hook. & Arn. Bot. Beechey, 335. Dietr. 4. 941. Durand, Pl. Pratten. 86. Torrey, Mex. Bound. 57.

L. macrocarpus. Hook. & Arn. Bot. Beechey, 138. Torr. & Gray, Fl. 1. 381. Walp. Rep. 1. 604. Dietr. 4. 943. Newberry, Pac. R. Rep. 6. 71. Boland. Proc. Calif. Acad. 3. 79.

L. arcticus. Watson, Rev. Lup. 526.

L. perennis. Richard. Journ. Frankl. 17. Hook. Fl. Bor.-Am. 1. 163, in part. Hook. & Arn. Bot. Beechey, 123. Ledeb. Fl. Ross. 1. 511. Seem. Bot. Herald, 28 & 51. Hook. f. Arct. Pl. 289. Rothr. Fl. Alask. 445.

L. argenteus. Pursh, 468. Poir. Suppl. 5. 722. DC. Prodr. 2. 408. Spreng. Syst. 3. 227. Hook. Fl. Bor.-Am. 1. 164. Don, Mill. 2. 367. Torr. & Gray, Fl. 1. 377, in part. Eat. & Wr. 307. Watson, Rev. Lup. 532. Porter, Fl. Col. 20. Brew. & Wats. Bot. Calif. 1. 121.

L. tenellus. Dougl.; Don, Mill. 2. 367. Agardh, Syn. 27.

L. laxiflorus, vars. *foliosus* & *tenellus*. Torr. & Gray, Fl. 1. 377. Walp. Rep. 1. 602.

L. ornatus. Newberry, Pac. R. Rep. 6. 70.

Var. **decumbens**. Watson, Rev. Lup. 532. Porter, Fl. Col. 20. Rothrock, Pl. Wheeler, 37.

L. argenteus. James, Cat. 186.

L. decumbens. Torrey, Ann. Lyc. N. Y. 2. 191. Don, Mill. 2. 367. Torr. & Gray, Fl. 1. 381. Eat. & Wr. 306. Walp. Rep. 1. 604. Dietr. 4. 943. Gray, Pl. Fendl. 38. Engelm. Pl. Upp. Miss. 190. Porter, Hayd. Rep. 1870, 474.

L. laxiflorus. Hook. in Lond. Journ. Bot. 6. 215. Gray, Pl. Fendl. 38; Am. Journ. Sci. 2. 33. 411. Coulter, Hayd. Rep. 1872, 763.

L. ornatus. Torrey, Frem. Rep. 89, mostly.

L. laxiflorus, var. *tenellus*. Porter, Hayd. Rep. 1871, 480.

Var. **argophyllus**. Watson, Rev. Lup. 532. Porter, Fl. Col. 20.

L. ornatus. Torrey, Frem. Rep. 89, in part.

L. decumbens, var. *argophyllus*. Gray, Pl. Fendl. 37. Torrey, Pac. R. Rep. 4. 81. Durand, Fl. Utah, 163?

L. aridus. Dougl.; Lindl. Bot. Reg. 15, t. **1242**. Hook. Fl. Bor.-Am. 1. 165. Don, Mill. 2. 367. Spach, Hist. Veg. 1. 352. Agardh, Syn. 31. Torr. & Gray, Fl. 1. 379. Eat. & Wr. 307. Walp. Rep. 1. 603. Dietr. 4. 942. Boland. Cat. 8. Watson, Rev. Lup. 533. Brew. & Wats. Bot. Calif. 1. 122.

Var. **Lobbii**. Watson, Rev. Lup. 533. Brew. & Wats. l. c.

Var. **Utahensis**. Watson, Rev. Lup. 534.

L. aridus? Watson, King's Rep. 5. 57, in part.

L. barbiger. Watson, Rev. Lup. 528.

L. brevicaulis. Watson, King's Rep. 5. 53, t. 7; Rev. Lup. 539. Parry, Am. Naturalist, 9. 270. Brew. & Wats. Bot. Calif. 1. 125.

L. pusillus. Anderson, Cat. Pl. Nev. 119, in part.

L. Breweri. Gray, Proc. Am. Acad. 6. 334. Anderson, Cat. Pl. Nev. 119. Watson, King's Rep. 5. 58; Rev. Lup. 534. Brew. & Wats. Bot. Calif. 1. 122.

L. Burkei. Watson, Rev. 525. Brew. & Wats. Bot. Calif. 1. 118.

L. polyphyllus. Anderson, Cat. Pl. Nev. 119. Watson, King's Rep. 5. 55. Porter, Hayd. Rep. 1871, 480. Coulter, same, 1872, 763.

L. ——? Watson, King's Rep. 5. 58.

L. cæspitosus. Nutt.; Torr. & Gray, Fl. 1. 379. Walp. Rep. 1. 603. Dietr. 4. 942. Gray, Proc. Acad. Philad. 1863, 59. Porter, Hayd. Rep. 1871, 480; Fl. Col. 20. Coulter, Hayd. Rep. 1872, 763. Watson, Rev. Lup. 533. Rothrock, Pl. Wheeler, 37.

L. calcaratus. Kellogg, Proc. Calif. Acad. 2. 195, **fig. 60.** Anderson, Cat. Pl. Nev. 119. Watson, King's Rep. 5. 56; Rev. Lup. 531. Brew. & Wats. l. c. 121.

L. decumbens, var. *argophyllus.* Torr. & Gray, Pac. R. Rep. 2. 121.

L. laxiflorus & *L. sulphureus.* Watson, King's Rep. 5. 55 & 57.

L. Chamissonis. Eschscholtz, Mem. Acad. Petersb. 10. 288 (Litt.-Ber. zu Linnæa, 1828, 151). Presl, Repert. Bot. 1. 198. Don, Mill. 2. 367. Agardh, Syn. 32. Hook. & Arn. Bot. Beechey, 336. Walp. Rep. 1. 603. Brew. & Wats. l. c. 117.

L. albifrons. Benth. Trans. Hort. Soc. Lond. 2 ser. 1. 410; Pl. Hartw. 303. Lindl. Bot. Reg. 19, **t. 1642** (Litt.-Ber. zu Linnæa, 1835, 30). Agardh, Syn. 33. Torr. & Gray, Fl. 1. 380. Hook. & Arn. Bot. Beechey, 336. Walp. Rep. 1. 603. Dietr. 4. 942. Torrey, Pac. R. Rep. 4. 81; Mex. Bound. 57; Bot. Wilkes, 281. Newberry, Pac. R. Rep. 6. 70. Boland. Proc. Calif. Acad. 3. 79; Cat. 8. Watson, Rev. Lup. 523.

L. sericeus. Hook. & Arn. Bot. Beechey, 138.

L. ornatus. Torrey, Pac. R. Rep. 4. 81; Mex. Bound. 57. Boland. Cat. 8.

L. Douglasii & *L. littoralis.* Torrey, Mex. Bound. 57 & 58.

L. holosericeus. Gray, Proc. Am. Acad. 8. 379.

Var. **longifolius.** Watson, Bot. Calif. 1. 117.

L. rivularis. Torrey, Pac. R. Rep. 4. 81.

Var. **longebracteatus.** Watson, Bot. Calif. 1. 117.

L. macrocarpus. Torrey, Pac. R. Rep. 4. 81.

L. concinnus. Agardh, Syn. 6, **t. 1.** Hook. & Arn. Bot. Beechey, 335. Torr. & Gray, Fl. 1. 372. Walp. Rep. 1. 596. Dietr. 4. 937. Gray, Ives's Rep. 9. Watson, Rev. Lup. 537. Brew. & Wats. Bot. Calif. 1. 124.

L. pusillus. Torrey, Mex. Bound. 57, in part.

Var. (?) **Arizonicus.** Watson, Rev. Lup. 537. Brew. & Wats. l. c.

L. sparsiflorus. Torrey, Pac. R. Rep. 4. 81, in part.

L. hirsutissimus. Gray, Ives's Rep. 9.

L. confertus. Kellogg, Proc. Calif. Acad. 2, 192, **fig. 59.** Watson, Rev. 530. Brew. & Wats. Bot. Calif. 1. 120.

L. Torreyi. Gray; Watson, King's Rep. 5. 58.

L. sellulus. Kellogg, Proc. Calif. Acad. 5. 36.

L. densiflorus. Bentham, Trans. Hort. Soc. Lond. 2. 1. 409. Lindl. Bot. Reg. 20, **t. 1689** (Litt.-Ber. zu Linnæa, 1835, 56). Torr. & Gray, Fl. 1. 371. Walp. Rep. 1. 595 & 605. Dietr. 4. 936 & 945. Torrey, Pac. R. Rep. 4. 81. Boland. Cat. 8. Watson, Rev. Lup. 538. Brew. & Wats. Bot. Calif. I. 124.

L. Menziesii. Agardh, Syn. 2. Hook. & Arn. Bot. Beechey, 335. Torr. & Gray, Fl. 1. 371. Walp. Rep. 1. 595; Ann. 7. 674. Benth. Pl. Hartw. 303. Hook. Bot. Mag. **t. 5019.** Journ. d'Hort. 1. 2, **t. 3.** Fl. Serres, 14. 175, **t. 1458.**

L. succulentus. Dougl.; Koch, Wochenschr. Gærtn. 4. 276; Ind. Sem. h. Berl. 1867, Appx. 11.

L. Menziesii, var. *aurea.* Kellogg, Proc. Calif. Acad. 5. 16.

L. diffusus. Nutt. Genera, 2. 93. Elliott, 2. 192. DC. Prodr. 2. 410. Don, Mill. 2. 369. Eat. & Wr. 307. Walp. Rep. 1. 605. Chapman, 89. Wood, Bot. & Fl. 90. Watson, Rev. Lup. 523.

L. villosus, var. *diffusus.* Torr. & Gray, Fl. 1. 382.

L. Douglasii. Agardh, Syn. 34. Hook. & Arn. Bot. Beechey, 336. Torr. & Gray, Fl. 1. 380. Walp. Rep. 1. 603. Dietr. 4. 943. Durand, Pl. Pratten. 86? Watson, Rev. Lup. 524. Brew. & Wats. Bot. Calif. 1. 117.

L. flexuosus. Lindl.; Agardh, Syn. 34. Torr. & Gray, Fl. 1. 381. Walp. Rep. 1. 603. Dietr. 4. 943. Cooper, Pac. R. Rep. 12. 59. Watson, Rev. Lup. 530.

L. gracilis. Agardh, Syn. 15, t. 1. Hook. & Arn. Bot. Beechey, 335. Torr. & Gray, Fl. 1. 372. Walp. Rep. 1. 598. Dietr. 4. 936. Watson, Rev. Lup. 537. Brew. & Wats. Bot. Calif. 1. 124.

L. Grayi. Watson, Proc. Am. Acad. 11. 126. Brew. & Wats. Bot. Calif. 1. 119.

L. hirsutissimus. Benth. Trans. Hort. Soc. Lond. 2. 1. 409. Agardh, Syn. 4. Hook. & Arn. Bot. Beechey, 335. Torr. & Gray, Fl. 1. 372. Walp. Rep. 1. 595. Dietr. 4. 936. Torrey, Pac. R. Rep. 7. 10; Mex. Bound. 57, in part. Boland. Cat. 8. Watson, Rev. Lup. 537. Brew. & Wats. Bot. Calif. 1. 124.

L. sparsiflorus. Torrey, Pac. R. Rep. 4. 81, in part.

L. holosericeus. Nutt,; Torr. & Gray, Fl. 1. 380. Walp. Rep. 1. 604. Dietr. 4. 943. Watson, Rev. Lup. 532; Pl. Wheeler, 7. Brew. & Wats. Bot. Calif. 1. 121.

L. ornatus or *argenteus.* Anderson, Cat. Pl. Nev. 119.

L. leucopsis & *L. meionanthus*, var. *heteranthus.* Watson, King's Rep. 5. 56.

L. flexuosus. Watson, l. c., in part, and var.

Var. Utahensis. Watson, Rev. Lup. 538.

L. albicaulis. Torrey, Stansb. Rep. 386. Durand, Fl. Utah, 163.

L. leucopsis, var. Watson, King's Rep. 5. 56.

L. Kingii. Watson, Rev. Lup. 534.

L. aridus. Watson, King's Rep. 5. 57, in part.

L. Sileri. Watson, Proc. Am. Acad. 10. 345; Am. Naturalist, 9. 270. Rothr. Pl. Wheeler, 37. Brandegee, Fl. S. W. Col. 234.

L. laxiflorus. Dougl.; Lindl. Bot. Reg. 14, t. 1140. Hook. Fl. Bor.-Am. 1. 164. Don, Mill. 2. 368. Agardh, Syn. 27. Spach, Hist. Veg. 1. 352. Torr. & Gray, Fl. 1. 377, excl. vars.; Pac. R. Rep. 2. 121? Eat. & Wr. 307. Walp. Rep. 1. 602. Dietr. 4. 941. Cooper, Pac. R. Rep. 12. 59? Gray, Proc. Am. Acad. 8. 379. Watson, Rev. Lup. 531; Pl. Wheeler, 7. Brew. & Wats. Bot. Calif. 1. 121.

L. arbustus. Dougl.; Lindl. Bot. Reg. 15, t. 1230. Hook. Fl. Bor.-Am. 1. 164. Don, Mill. 2. 368. Spach, Hist. Veg. 1. 351. Eat. & Wr. 306.

L. fidiosus. Hook. in Lond. Journ. Bot. 6. 215.

? *L. decumbens.* Torrey, Pac. R. Rep. 4. 81.

? *L. caudatus.* Kellogg, Proc. Calif. Acad. 2. 198, fig. 61.

L. argenteus & *L. flexuosus* in part. Watson, King's Rep. 5. 55.

L. lepidus. Dougl.; Lindl. Bot. Reg. 14, t. 1149. Hook. Fl. Bor.-Am. 1. 163. Don, Mill. 2. 367. Spach, Hist. Veg. 1. 352. Agardh, Syn. 17. Lodd. Bot. Cab. t. 1980. Torr. & Gray, Fl. 1. 374. Eat. & Wr. 306. Walp. Rep. 1. 599. Dietr. 4. 939. Newberry, Pac. R. Rep. 6. 71. Cooper, same, 12. 58. Watson, Rev. 530. Torrey, Bot. Wilkes, 280. Brew. & Wats. Bot. Calif. 1. 120.

L. concinnus. Durand, Pl. Pratten. 86.

L. flexuosus. Watson, King's Rep. 5. 55, in part.

L. leptophyllus. Benth. Trans. Hort. Soc. Lond. 2. 1. 409. Lindl. Bot. Reg. 20, t. 1670. Agardh, Syn. 11. Hook. & Arn. Bot. Beechey, 335. Torr. & Gray, Fl. 1. 373. Walp. Rep. 1. 597. Dietr. 4. 938. Torrey, Pac. R. Rep. 4. 81. Gray, Proc. Bost. Soc. Nat. Hist. 7. 146. Watson, Rev. Lup. 536. Brew. & Wats. Bot. Calif. 1. 123.

L. leucophyllus. Dougl.; Lindl. Bot. Reg. 13, t. **1124.** Hook. Fl. Bor.-Am. 1. 165. Don, Mill. 2. 367. Spach, Hist. Veg. 1. 348. Agardh, Syn. 31. Torr. & Gray, Fl. 1. 379. Eat. & Wr. 307. Torrey, Frem. Rep. 89; Bot. Wilkes, 280. Dietr. 4. 942. Gray, Pl. Fendl. 38 ?; Proc. Am. Acad. 8. 379. Newberry, Pac. R. Rep. 6. 71. Cooper, same, 12. 52. Anderson, Cat. Pl. Nev. 119. Watson, King's Rep. 5. 57; Rev. Lup. 529; Pl. Wheeler, 7. Porter, Hayd. Rep. 1871, 480. Coulter, same, 1872, 763. Brew. & Wats. Bot. Calif. 1. 119.

L. plumosus. Dougl.; Lindl. Bot. Reg. 15, t. **1217.** Hook. Fl. Bor.-Am. 1. 165. Don, Mill. 2. 367. Spach, Hist. Veg. 1. 348. Agardh, Syn. 32. Hook. & Arn. Bot. Beechey, 336. Torr. & Gray, Fl. 1. 380. Eat. & Wr. 307. Walp. Rep. 1. 603. Dietr. 4. 942.

L. albicaulis. Hook. in Lond. Journ. Bot. 6. 216, in part.

L. littoralis. Dougl.; Lindl. Bot. Reg. 14, t. **1198.** Graham, Edinb. Phil. Journ. 1829, 185. Hook. Bot. Mag. t. **2952**; Fl. Bor.-Am. 1. 164. Don, Mill. 2. 367. Agardh, Syn. 36. Hook. & Arn. Bot. Beechey, 335. Torr. & Gray, Fl. 1. 381. Eat. & Wr. 307. Walp. Rep. 1. 604. Dietr. 4. 943. Cooper, Pac. R. Rep. 12. 58. Boland. Cat. 8. Watson, Rev. Lup. 526. Torrey, Bot. Wilkes, 281. Brew. & Wats. Bot. Calif. 1. 118.

L. Nutkatensis, var. *fruticosus.* Sims, Bot. Mag. t. **2136.**

L. versicolor. Lindl. Bot. Reg. 23, t. **1979,** not Sweet. Spach, Hist. Veg. 1. 351. Maund, Bot. Gard. 13, t. **615.** Torr. & Gray, Fl. 1. 376. Walp. Rep. 1. 607. Dietr. 4. 940.

L. Nutkatensis, var. *glaber.* Hook. Fl. Bor.-Am. 1. 163.

L. Nutkatensis. Cooper, Pac. R. Rep. 12. 58.

L. luteolus. Kellogg, Proc. Calif. Acad. 5. 38. Brew. & Wats. Bot. Calif. 1. 125.

L. Bridgesii. Gray; Watson, Rev. Lup. 538.

L. Lyallii. Gray, Proc. Am. Acad. 6. 334. Watson, Rev. Lup. 534. Brew. Wats. Bot. Calif. 1. 122.

Var. **Danaus.** Watson, Rev. Lup. 534. Brew. & Wats. l. c.

L. meionanthus. Gray, Proc. Am. Acad. 6. 522. Anderson, Cat. Pl. Nev. 11 Watson, King's Rep. 5. 56; Rev. Lup. 533. Brew. & Wats. Bot. Calif. 1. 121.

L. micranthus. Dougl.; Lindl. Bot. Reg. 15, t. **1251.** Hook. Fl. Bor.-Am. 1. 16 Don, Mill. 2. 366. Spach, Hist. Veg. 1. 345. Agardh, Syn. 14. Hook. & Ar Bot. Beechey, 335. Torr. & Gray, Fl. 1. 373. Eat. & Wr. 307. Walp. Rep. 1. 59 Dietr. 4. 938. Newberry, Pac. R. Rep. 6. 70. Cooper, same, 12. 58. Torrey, Mex Bound. 57; Bot. Wilkes, 279. Boland. Cat. 8. Watson, Rev. Lup. 535. Brew. Wats. Bot. Calif. 1. 123.

L. nanus, var. Benth. Pl. Hartw. 303.

L. bicolor. Torrey, Mex. Bound. 57. Gray, Proc. Am. Acad. 8. 379.

Var. **bicolor.** Watson, Rev. Lup. 536. Brew. & Wats. Bot. Calif. 1. 123.

L. bicolor. Lindl. Bot. Reg. 13, t. **1109.** Hook. Fl. Bor.-Am. 1. 162. Don, Mill. 2. 366. Spach, Hist. Veg. 1. 344. Agardh, Syn. 14. Hook. & Arn. Bot. Beechey, 335. Torr. & Gray, Fl. 1. 373. Eat. & Wr. 307. Walp. Rep. 1. 598. Dietr. 4. 938. Torrey, Pac. R. Rep. 4. 81, in part. Newberry, same, 6. 70.

L. gracilis. Durand & Hilgard, Pac. R. Rep. 5. 7, in part.

Var. **microphyllus.** Watson, Rev. Lup. 535. Brew. & Wats. Bot. Calif. 1. 123.

Var. **trifidus.** Watson, l. c. Brew. & Wats. l. c.

L. bicolor. Torrey, Pac. R. Rep. 4. 81, in part.

L. microcarpus. Sims, Bot. Mag. t. **2413.** DC. Prodr. 2. 408. Don, Mill. 2. 366. Agardh, Syn. 2. Hook. & Arn. Bot. Beechey, 21 & 335. Torr. & Gray, Fl. 1. 371. Walp. Rep. 1. 595. Dietr. 4. 936. Gray, Proc. Bost. Soc. Nat. Hist. 7. 146. Watson, Rev. Lup. 538. Torrey, Bot. Wilkes, 279. Brew. & Wats. l. c. 124.

L. densiflorus. Agardh, Syn. 3. Benth. Pl. Hartw. 303. Hook. & Arn. Bot. Beechey, 335.

L. Menziesii. Torrey, Mex. Bound. 57.

L. palustris & lacteus. Kellogg, Proc. Calif. Acad. 5. 16 & 37.

L. minimus. Dougl.; Hook. Fl. Bor.-Am. 1. 163. Don, Mill. 2. 367 & 476. Agardh, Syn. 16. Torr. & Gray, Fl. 1. 374. Eat. & Wr. 306. Walp. Rep. 1. 598. Dietr. 4. 939. Gray, Proc. Am. Acad. 6. 335 & 8. 379. Watson, Rev. Lup. 534. Torrey, Bot. Wilkes, 279. Brew. & Wats. Bot. Calif. 1. 122.

L. nanus. Dougl.; Benth. Trans. Hort. Soc. Lond. 2. 1. 409, t. **14,** & Pl. Hartw. 303. Don, in Sweet's Brit. Fl. Gard. 2 ser. t. **257.** Agardh, Syn. 11. Lindl. Bot. Reg. 20, t. **1705.** Maund, Bot. Gard. 13, t. **578.** Hook. & Arn. Bot. Beechey, 335. Torr. & Gray, Fl. 1. 373. Walp. Rep. 1. 597. Dietr. 4. 938. Durand, Pl. Pratten. 86. Torrey, Pac. R. Rep. 4. 81. Newberry, same, 6. 70. Boland. Cat. 8. Watson, Rev. Lup. 535. Brew. & Wats. Bot. Calif. 1. 123.

L. affinis. Agardh, Syn. 20, in part. Torrey, Mex. Bound. 57, in part.

L. nanus, var. *latifolius.* Benth. Pl. Hartw. 303. Torrey, Pac. R. Rep. 4. 81.

L. sparsiflorus. Torrey, Pac. R. Rep. 5. 360. Gray, Ives's Rep. 9.

L. bicolor. Gray, Proc. Bost. Soc. Nat. Hist. 7. 146.

L. Nootkatensis. Donn, Cat. Hort. Cant. Sims, Bot. Mag. t. **1311.** Ait. f. Hort. Kew. 4. 286. Pursh, 467. Poir. Suppl. 5. 722. Lodd. Bot. Cab. t. **879.** DC. Prodr. 2. 408. Hook. Fl. Bor.-Am. 1. 163, excl. var. Cham. in Linnæa, 6. 548. Don, Mill. 2. 366. Spach, Hist. Veg. 1. 351. Agardh, Syn. 21. Hook. & Arn. Bot. Beechey, 335. Torr. & Gray, Fl. 1. 375. Eat. & Wr. 306. Ledeb. Fl. Ross. 1. 512. Dietr. 4. 940. Regel, Ind. Sem. h. Petrop. 1857 (Walp. Ann. 7. 674). Rothr. Fl. Alask. 445. Watson, Rev. Lup. 524.

L. variegatus. Poir. Suppl. 3. 520.

L. Nutkanus. Spreng. Syst. 3. 227.

L. macrorrhizus. Georgi, Beschr. Ross. 4. 1162.

L. Blaschkeanus. Fisch. & Mey.; C. A. Meyer, Ind. Sem. h. Petr. 11, Suppl. 57.

Var. **Unalaskensis.** Watson, Rev. Lup. 524.

L. regius. Rudolphi.

L. Nuttallii. Watson, Rev. Lup. 526.

L. gracilis. Nutt. in Journ. Philad. Acad. 7. 115, not Agardh.

L. perennis, var. Torr. & Gray, Fl. 1. 376. Chapman, 89.

L. onustus. Watson, Proc. Am. Acad. 11. 127. Brew. & Wats. Bot. Calif. 1. 120.

L. ornatus. Dougl.; Lindl. Bot. Reg. 14, t. **1216.** Hook. Fl. Bor.-Am. 1. 164. Don, Mill. 2. 367. Sweet, Brit. Fl. Gard. 2. ser. t. **212.** Maund, Bot. Gard. 10, t. **438.** Spach, Hist. Veg. 1. 349. Agardh, Syn. 28. Torr. & Gray, Fl. 1. 378. Eat. & Wr. 306. Walp. Rep. 1. 602. Dietr. 4. 942. Gray, Proc. Am. Acad. 8. 379. Watson, Rev. Lup. 528. Porter, Fl. Col. 19. Torrey, Bot. Wilkes, 280. Brew. & Wats. Bot. Calif. 1. 119.

L. leucopsis. Agardh, Syn. 29. Torr. & Gray, Fl. 1. 378. Walp. Rep. 1. 602. Dietr. 4. 942.

L. argenteus. Agardh, Syn. 27. Torr. & Gray, Fl. 1. 377, in part. Walp. Rep. 602. Dietr. 4. 942.

L. sericeus. Cooper, Pac. R. Rep. 12. 52.

Var. (?) **glabratus.** Watson, Rev. Lup. 528. Porter, Fl. Col. 19.

L. ornatus. Torrey, Frem. Rep. 89, in part. Engelm. Pl. Upp. Miss. 190. Gray, Proc. Acad. Philad. 1863, 59. Porter, Hayd. Rep. 1870, 474; 1871, 480. Coulter, same, 1872, 763.

L. Palmeri. Watson, Rev. Lup. 530. Brew. & Wats. Bot. Calif. 1. 120.

L. parviflorus. Nutt.; Hook. & Arn. Bot. Beechey, 336. Torr. & Gray, Fl. 1. 375. Walp. Rep. 1. 599. Dietr. 4. 939. Porter, Hayd. Rep. 1870, 474; Fl. Col. 20. Watson, King's Rep. 5. 54; Rev. Lup. 531; Pl. Wheeler, 7. Gray, Proc. Am. Acad. 8. 379. Coulter, Hayd. Rep. 1872, 763. Brew. & Wats. Bot. Calif. 1. 120.

L. perennis. Linn. Spec. 721. Hill, Veg. Syst. 20, **t. 54, fig. 1.** Walter, 180. Desrous. in Lam. Dict. 3. 621; Ill. **t. 616.** Ait. Hort. Kew. 2. 28. Curtis, Bot. Mag. **t. 202.** Willd. Spec. 3. 1022. Michx. Fl. 2. 55. Persoon, 2. 293. Pursh, 467. Bigel. Fl. Bost. 267. Barton, Fl. N. Am. 2. 4, **t. 38.** Elliott, 2. 191. DC. Prodr. 2. 408. Spreng. Syst. 3. 227. Torrey, Compend. 263. Hook. Fl. Bor.-Am. 1. 163, in part. Maund, Bot. Gard. 7, **t. 310.** Don, Mill. 2. 366. Beck, Bot. 92. Spach, Hist. Veg. 1. 350. Darling. Fl. Cestr. 431. Torr. & Gray, Fl. 1. 376, in part. Eat. & Wr. 306. Walp. Rep. 1. 601. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 190. Gray, Pac. R. Rep. 12. 42; Manual, 126. Chapman, 89. Watson, Rev. Lup. 526.

Var. **occidentalis.** Watson, Rev. Lup. 526.

L. polyphyllus. Lindl. Bot. Reg. 13, **t. 1096,** & 16, **t. 1377.** Hook. Fl. Bor.-Am. 1. 164; Lond. Journ. Bot. 6. 216. Maund, Bot. Gard. 7, **t. 291.** Don, Mill. 2. 366. Spach, Hist. Veg. 1. 347. Reichenb. Fl. Exot. **t. 176.** Agardh, Syn. 17. Hook. & Arn. Bot. Beechey, 138. Torr. & Gray, Fl. 1. 375. Eat. & Wr. 306. Walp. Rep. 1. 599. Dietr. 4. 939. Newberry, Pac. R. Rep. 6. 70. Cooper, same, 12. 58. Regel, Ind. Sem. h. Petrop. 1866, 108. Boland. Cat. 8. Gray, Proc. Am. Acad. 8. 379. Watson, Rev. Lup. 524. Torrey, Bot. Wilkes, 280. Brew. & Wats. Bot. Calif. 1. 117.

L. grandifolius. Lindl.; Agardh, Syn. 18. Hook. & Arn. Bot. Beechey, 335. Walp. Rep. 1. 599.

L. macrophyllus. Benth.; Don, Sweet's Brit. Fl. Gard. 2 ser. **t. 356** & Addend. Walp. Rep. 1. 599.

L. pusillus. Pursh, 468. Poir. Suppl. 5. 722. Bradbury, Cat. 337. Nutt. Gen. era, 2. 93. James, Cat. 186. DC. Prodr. 2. 408. Spreng. Syst. 3. 228. Torrey, Ann. Lyc. N. Y. 2. 191; Nicol. Rep. 149; Sitgr. Rep. 158; Mex. Bound. 57, in part. Bot. Wilkes, 279. Hook. Fl. Bor.-Am. 1. 162; Lond. Journ. Bot. 6. 216. Don, Mill. 2. 366. Agardh, Syn. 15. Torr. & Gray, Fl. 1. 374. Eat. & Wr. 307. Walp. Rep. 1. 598. Gray, Pl. Wright. 2. 49; Pl. Thurb. 300; Ives's Rep. 9; Pac. R. Rep. 12. 42; Proc. Acad. Philad. 1863, 59. Engelm. Pl. Upp. Miss. 190. Anderson, Cat. Pl. Nev. 119, in part. Porter, Hayd. Rep. 1870, 474; 1871, 480; Fl. Col. 20. Watson, King's Rep. 5. 53; Rev. Lup. 538. Coulter, Hayd. Rep. 1872, 763. Rothr. Pl. Wheeler, 37. Parry, Am. Naturalist, 9. 270. Brew. & Wats. Bot. Calif. 1. 125.

L. rivularis. Dougl.; Lindl. Bot. Reg. 19, **t. 1595** (Litt.-Ber. zu Linnæa, 1835, 16). Spach, Hist. Veg. 1. 353. Walp. Rep. 1. 601. Watson, Rev. Lup. 525. Torrey, Bot. Wilkes, 280. Brew. & Wats. Bot. Calif. 1. 118.

L. cytisoides. Agardh, Syn. 18. Torr. & Gray, Fl. 1. 375. Walp. Rep. 1. 599. Torrey, Mex. Bound. 57, in part.

L. latifolius? Gray, Proc. Am. Acad. 8. 379.

Var. **latifolius.** Watson, Rev. Lup. 525. Brew. & Wats. l. c.

L. latifolius. Agardh, Syn. 18. Lindl. Bot. Reg. 22, **t. 1891.** Hook. & Arn. Bot. Beechey, 335. Torr. & Gray, Fl. 1. 375. Walp. Rep. 1. 599. Dietr. 4. 939.

Durand, Pl. Pratten. 86? Torrey, Pac. R. Rep. 4. 81. Newberry, same, 6. 70? Boland. Cat. 8.

L. cytisoides. Torrey, Mex. Bound. 57, in part.

L. Sabinii. Dougl.; Hook. Fl. Bor.-Am. 1. 166. Torr. & Gray, Fl. 1. 378. Eat. & Wr. 307. Walp. Rep. 1. 602. Dietr. 4. 942. Watson, Rev. Lup. 527. Brew. & Wats. Bot. Calif. 1. 118.

L. Sabinianus. Dougl.; Lindl. Bot. Reg. 17, t. **1435**. Don, Mill. 2. 367. Spach, Hist. Veg. 1. 349. Agardh, Syn. 30.

L. sericeus. Pursh, 468. Poir. Suppl. 5. 722. DC. Prodr. 2. 408. Spreng. Syst. 3. 227. Hook. Fl. Bor.-Am. 1. 164. Don, Mill. 2. 367. Agardh, Syn. 31. Hook. & Arn. Bot. Beechey, 336. Torr. & Gray, Fl. 1. 379, in part. Eat. & Wr. 306. Walp. Rep. 1. 603. Benth. Bot. Sulph. 11. Dietr. 4. 942. Watson, King's Rep. 5. 57; Rev. Lup. 529. Coulter, Hayd. Rep. 1872, 763? Torrey, Bot. Wilkes, 281. Brew. & Wats. Bot. Calif. 1. 119.

L. ornatus. Nutt. in Journ. Acad. Philad. 7. 20.

L. albicaulis. Hook. in Lond. Journ. Bot. 6. 216, in part.

L. affinis. Torr. & Gray, Pac. R. Rep. 2. 121.

L. flexuosus. Watson, King's Rep. 5. 55, in part.

L. Sitgreavesii. Watson, Rev. Lup. 527; Pl. Wheeler, 7. Brandegee, Fl. S. W. Col. 234. Brew. & Wats. Bot. Calif. 1. 119.

L. Mexicanus. Gray, Pl. Wright. 2. 49, at least in part. Torrey, Mex. Bound. 57.

L. parviflorus. Benth. Pl. Hartw. 303. Walp. Ann. 2. 319. Torrey, Mex. Bound. 57. Watson, Rev. 536. Brew. & Wats. Bot. Calif. 1. 123.

L. gracilis. Durand & Hilgard, Pac. R. Rep. 5. 7, in part.

L. Stiveri. Kellogg, Proc. Calif. Acad. 2. 192, **fig. 58**. Watson, Rev. Lup. 537. Brew. & Wats. Bot. Calif. 1. 123.

L. subcarnosus. Hook. Bot. Mag. t. **3467**. Torr. & Gray, Fl. 1. 372. Walp. Rep. 1. 596. Dietr. 4. 937. Scheele, Roem. Texas, 428. Gray, Pl. Wright. 1. 54; Hall's Pl. Texas, 7. Torrey, Mex. Bound. 57. Watson, Rev. Lup. 536.

L. bimaculatus. Hook.; Don, Sweet's Brit. Fl. Gard. 2 ser. t. **314**. Walp. Rep. 1. 596.

L. Texensis. Hook. Bot. Mag. t. **3492**. Torr. & Gray, Fl. 1. 372. Walp. Rep. 1. 596. Engelm. & Gray, Pl. Lindh. 34. Dietr. 4. 937. Scheele, Roem. Texas, 428. Gray, Pl. Lindh. 177.

L. sulphureus. Dougl.; Hook. Fl. Bor.-Am. 1. 166. Don, Mill. 2. 367. Agardh, Syn. 30. Torr. & Gray, Fl. 1. 378. Eat. & Wr. 307. Walp. Rep. 1. 602. Dietr. 4. 942. Watson, Rev. Lup. 528.

? *L. sericeus.* Torr. & Gray, Fl. 1. 379, in part.

L. truncatus. Nutt.; Hook. & Arn. Bot. Beechey, 336. Torr. & Gray, Fl. 1. 373. Walp. Rep. 1. 597. Dietr. 4. 938. Torrey, Mex. Bound. 57. Boland. Cat. 8. Watson, Rev. Lup. 536. Brew. & Wats. Bot. Calif. 1. 123.

L. uncialis. Watson, King's Rep. 5. 54, t. **7**; Rev. Lup. 539. Brew. & Wats. Bot. Calif. 1. 125.

L. villosus. Willd. Spec. 3. 1029. Persoon, 2. 294. Ait. f. Hort. Kew. 4. 287. Poir. Suppl. 3. 519. Pursh, 486, t. **21**. Nutt. Genera, 2. 93. Elliott, 2. 191. DC. Prodr. 2. 410. Spreng. Syst. 3. 228. Don, Mill. 2. 369. Agardh, Syn. 41. Torr. & Gray, Fl. 1. 382. Eat. & Wr. 307. Walp. Rep. 1. 605. Chapman, 89. Wood, Bot. & Fl. 90. Watson, Rev. Lup. 522.

L. pilosus. Walter, 180. Michx. Fl. 2. 56.
L. integrifolius. Desrous. in Lam. Dict. 3. 627.

L. Wyethii. Watson, Rev. Lup. 525.
L. sericeus. Nutt. in Journ. Acad. Philad. 7. 19.

L. albifrons; Chamissonis.
albicaulis; holosericeus, leucophyllus, sericeus.
argenteus; laxiflorus, ornatus.
arbustus; laxiflorus.
aridus; Kingii.
bicolor; micranthus, nanus.
bimaculatus; subcarnosus.
Blaschkeanus; Nootkatensis.
Bridgesii; luteolus.
caudatus; laxiflorus.
cervinus; affinis.
concinnus; lepidus.
cytisoides; rivularis.
decumbens; argenteus, calcaratus, laxiflorus.
densiflorus; microcarpus.
Douglasii; Chamissonis, ornatus.
flexuosus; holosericeus, laxiflorus, lepidus, sericeus.
foliosus; albicaulis, laxiflorus.
gracilis; micranthus, Nuttallii, sparsiflorus.
grandifolius; polyphyllus.
hirsutissimus; concinnus.
holosericeus; Chamissonis.
lacteus; microcarpus.
integrifolius; villosus.
latifolius; rivularis.
laxiflorus; albicaulis, argenteus, calcaratus.
leucopsis; holosericeus, ornatus.
littoralis; Chamissonis.
L. macrocarpus; arboreus, Cl
macrophyllus; polyphyllus
macrorrhizos; Nootkatensi
meionanthus; holosericeus
Menziesii; densiflorus, mi
Mexicanus; albicaulis, Sil
nanus; micranthus.
Nootkatensis; littoralis.
ornatus; argenteus, Chan loscriceus, sericeus.
palustris; microcarpus.
perennis; arcticus, Nuttal
pilosus; villosus.
plumosus; leucophyllus.
polyphyllus; Burkei.
pusillus; brevicaulis, conc
regius; Nootkatensis.
rivularis; arboreus, Cham
sellulus; confertus.
sericeus; arboreus, Chan natus, sulphureus, Wy
Sileri; Kingii.
sparsiflorus; concinnus, mus, nanus.
succulentus; densiflorus.
sulphureus; calcaratus.
tenellus; argenteus.
Texensis; subcarnosus.
Torreyi; confertus.
variegatus; Nootkatensis.
versicolor; littoralis.
villosus; diffusus.
—— ?; Burkei.

LYSILOMA latisiliqua. Benth. Rev. Mim. in Trans. Linn. S
with syn.
Acacia latisiliqua. Willd. Spec. 4. 1067. Nutt. Sylva, 2. 34, **t. 53.**
L. Bahamensis. Benth. in Hook. Lond. Journ. 3. 82.
Acacia Bahamensis. Griseb. Fl. Brit. W. Ind. 221.

MEDICAGO DENTICULATA, Willd. Hook. Comp. Bot. Mag. 1. 21. Arn. Bot. Beechey, 137. Torr. & Gray, Fl. 1. 321. Eat. & Wr. 31 Pac. R. Rep. 4. 79 & 7. 10; Mex. Bound. 53. Smith, Proc. Acad. Phil Gray, Manual, 128; Hall's Pl. Texas, 7. Boland. Cat. 9. Brew. & Calif. 1. 133.

M. maculata. Hook. & Arn. Bot. Beechey, 330.

M. INTERTEXTA, Willd. Pursh, 490. Elliott, 2. 248. Beck, Bot. 78. Torr. & Gray, Fl. 1. 322. Eat. & Wr. 315.

M. polymorpha, var. *intertexta.* Walter, 186.

M. LUPULINA, Linn. Walter, 186. Michx. Fl. 2. 60. Pursh, 490. Bigel. Fl. Bost. 278. Elliott, 2. 247. Torrey, Compend. 272; Fl. N. Y. 1. 172. Hook. Fl. Bor.-Am. 1. 129; Comp. Bot. Mag. 1. 21. Beck, Bot. 78. Torr. & Gray, Fl. 1. 322. Eat. & Wr. 315. Chapman, 90. Gray, Manual, 128. Brew. & Wats. Bot. Calif. 1. 133.

M. MACULATA, Willd. Hook. Comp. Bot. Mag. 1. 21. Torr. & Gray, Fl. 1. 321. Eat. & Wr. 315. Smith, Proc. Acad. Philad. 1867, 18. Gray, Manual, 128.

M. NIGRA, Willd. Elliott, 2. 248. Torr. & Gray, Fl. 1. 322.

M. SATIVA, Linn. Darling. Fl. Cestr. 405. Torr. & Gray, Fl. 1. 321. Eat. & Wr. 315. Torrey, Fl. N. Y. 1. 171; Mex. Bound. 53. Gray, Pl. Fendl. 33; Pl. Wright. 1. 50 & 2. 41; Manual, 128. Cooper, Pac. R. Rep. 12. 58. Boland. Cat. 9. Watson, King's Rep. 5. 58. Coulter, Hayd. Rep. 1872, 763. Brew. & Wats. Bot. Calif. 1. 132.

MELILOTUS ALBA, Lam. Eat. & Wr. 317. Chapman, 90. Gray, Manual, 128. Watson, King's Rep. 5. 58; Pl. Wheeler, 7. Brew. & Wats. Bot. Calif. 1. 132.

M. officinalis. Pursh, 477. Hook. Fl. Bor.-Am. 1. 130.

M. officinalis, var. *alba.* Nutt. Genera, 2. 104.

M. leucantha, Koch. Beck, Bot. 78. Torr. & Gray, Fl. 1. 321. Torrey, Fl. N. Y. 1. 171. Gray, Manual, 1 ed. 108.

M. INDICA, All. Benth. in Mart. Fl. Bras. 15^2. 34.

M. parviflora, Desf. Hook. Comp. Bot. Mag. 1. 22. Hook. & Arn. Bot. Beechey, 137. Torr. & Gray, Fl. 1. 321. Eat. & Wr. 317. Gray, Pl. Fendl. 33; Pl. Wright. 2. 41. Torrey, Pac. R. Rep. 4. 79 & 7. 9; Mex. Bound. 54; Bot. Wilkes, 272. Cooper, Pac. R. Rep. 12. 58. Smith, Proc. Acad. Philad. 1867, 18. Boland. Cat. 9. Watson, King's Rep. 5. 58. Brew. & Wats. Bot. Calif. 1. 132.

M. occidentalis. Nutt.; Torr. & Gray, Fl. 1. 321. Eat. & Wr. 317.

M. OFFICINALIS, Willd. Elliott, 2. 199. Torrey, Compend. 264; Fl. N. Y. 1. 170. Beck, Bot. 78. Torr. & Gray, Fl. 1. 320. Chapman, 90. Gray, Manual, 128. Brew. & Wats. Bot. Calif. 1. 132.

Trifolium officinale, Linn. Bigel. Fl. Bost. 169.

M. vulgaris. Eat. & Wr. 317.

MIMOSA acanthocarpa. Benth. in Hook. Journ. Bot. 4. 409; Rev. Mim. 428, with syn.

M. biuncifera. Torrey, Mex. Bound. 61, in part.

M. Berlandieri. Gray in Torrey, Mex. Bound. 61. Walp. Ann. 7. 829. Benth. Rev. Mim. in Trans. Linn. Soc. 30. 423.

M. biuncifera. Benth. Pl. Hartw. 12; Hook. Journ. Bot. 4. 409; Rev. Mim. 428. Walp. Rep. 1. 881. Gray, Pl. Wright. 1. 61 & 2. 51. Torrey, Mex. Bound. 61, in part. Watson, Pl. Wheeler, 8.

M. borealis. Gray, Pl. Fendl. 39; Pl. Wright. 1. 61 & 2. 51. Walp. Ann. 2. 451. Torr. & Gray, Pac. R. Rep. 2. 164. Torrey, Mex. Bound. 60. Benth. Rev. Mim. 426, **t. 66, fig.** Watson, Pl. Wheeler, 8.

Var. (?) **Texana.** Gray, Pl. Lindh. 182; Pl. Wright. 1. 61. Benth. l. c. 426.

M. dysocarpa. Benth. in Gray, Pl. Wright. 1. 62; Rev. Mim. 414, **t. 66, fig.** Gray, Pl. Wright. 2. 51. Walp. Ann. 4. 616. Torrey, Mex. Bound. 60.

M. Emoryana. Benth. Rev. Mim. 426.

M. flexuosa. Benth. in Gray, Pl. Wright. 1. 62; Rev. Mim. 428. Gray Wright. 2. 51. Walp. Ann. 4. 616. Torrey, Mex. Bound. 61.

M. fragrans. Gray, Pl. Lindh. 182; Pl. Wright. 1. 61 & 2. 51; Hall's Pl. T 8. Walp. Ann. 2. 451. Torrey, Mex. Bound. 60. Benth. Rev. Mim. 426.

M. Grahami. Gray, Pl. Wright. 2. 52. Walp. Ann. 4. 615. Seem. Bot. H 282. Benth. Rev. Mim. 428.

M. Lindheimeri. Gray, Pl. Lindh. 181; Pl. Wright. 2. 51. Walp. Ann. 2 Torrey, Mex. Bound. 60. Benth. Rev. Mim. 429.

M. malacophylla. Gray, Pl. Lindh. 182; Pl. Wright. 1. 62. Walp. Ann. 2 Torrey, Mex. Bound. 60. Benth. Rev. Mim. 423.

Var. **glabrata.** Benth. Rev. Mim. 423.

Var. *glabra.* Gray; Torrey, Mex. Bound. 61.

M. PUDICA, Linn. Chapman, 116.

M. strigillosa. Torr. & Gray, Fl. 1. 399. Walp. Rep. 1. 879. Benth. in Journ. Bot. 4. 402; Rev. Mim. 436. Dietr. 4. 472. Torrey, Mex. Bound. 61. man, 115. Wood, Bot. & Fl. 82. Gray, Hall's Pl. Texas, 7.

M. Wrightii. Gray, Pl. Wright. 2. 52. Walp. Ann. 4. 615. Benth. l. c. 4

M. zygophylla. Benth. in Gray, Pl. Wright. 1. 61; Rev. Mim. 425. Walp. 4. 616.

M. biuncifera; acanthocarpa.
calcarea; Prosopis cinerascens.
contortuplicata; Desmanthus brachylobus.
filicioides; Acacia filicina.
glandulosa; Desmanthus brachylobus.
M. horridula; Schrankia uncinata.
Illinoensis; Desmanthus bra bus.
Rœmeriana; Schrankia platyca
virgata; Neptunia lutea.

NEPTUNIA lutea. Benth. in Hook. Journ. Bot. 4. 356; Rev. Mim. in Linn. Soc. 30. 384. Walp. Rep. 1. 863. Engelm. & Gray, Pl. Lindh. 8. Gr Wright. 1. 61; Hall's Pl. Texas, 8. Torrey, Mex. Bound. 60, in part. Cha 117. Wood, Bot. & Fl. 82.

Mimosa virgata. Bartram, Trav. 421.

Acacia lutea. Leavenworth, Am. Journ. Sci. 1. 7. 61. Hook. Comp. Bot. 1. 24. Raf. New Flora, 1. 41. Torr. & Gray, Fl. 1. 403. Eat. & Wr. 111. T Marcy's Rep. 285.

Darlingtonia virgata. Raf. Fl. Lud. 444; New Flora, 43.

N. oleracea. Lour. Fl. Cochinch. 654. Griseb. Fl. Brit. W. Ind. 217. Rev. Mim. 383, with syn.

N. pubescens. Benth. in Lond. Journ. Bot. 4. 356; Rev. Mim. 384.

N. lutea. Torrey, Mex. Bound. 60, in part.

N. tenuis. Benth. ll. cc. 355 & 384. Walp. Rep. 1. 863.

Desmanthus lacustris. Torr. & Gray, Fl. 1. 402. Young, Fl. Texas, 249.

OLNEYA Tesota. Gray, Pl. Thurb. 328 (Regensb. Flora, 38. 588); Ives' 11. Torrey, Pac. R. Rep. 4. 11, 21 & 82; same, 7. 10, t. 5; Mex. Bound. 58. & Wats. Bot. Calif. 1. 157.

Tesota ——. Muller in Walp. Ann. 4. 587.

OROBUS. See under *Lathyrus*.

O. Californicus; Lathyrus venosus.
diffusus; Vicia Americana.
dispar; Astragalus multiflorus.
dissitifolius; Vicia Americana.
O. longifolius; Astragalus pictus.
Muhlenbergii; Lathyrus venosus.
myrtifolius; Lathyrus paluster.

OXYTROPIS campestris. DC. Astrag. 74, with syn. See syn. also in Ledeb. Fl. Ross. 1. 591; Hook. f. Arct. Pl. 289 & 324. — Richard. in Journ. Frankl. 17. Hook. Fl. Bor.-Am. 1. 147. Don, Mill. 2. 251, **fig. 40.** Cham. in Linnæa, 6. 546. Torr. & Gray, Fl. 1. 340. Eat. & Wr. 337. Walp. Rep. 1. 693. Ruprecht, Beitr. Pfl. Russ. 2. 30. Seem. Bot. Herald, 28 & 51. Hook. f. in Journ. Linn. Soc. 1. 116, 121, 124 & 5. 83. Dickie, same, 3. 110. Regel. & Til. in Fl. Ajan. 77. Pl. Bourgeau, 256. Rothr. Fl. Alask. 445. Gray, Proc. Am. Acad. 6. 235; Manual, 133. Matthew, Pl. Acad. 15. Porter, Fl. Col. 30. Parry, Am. Naturalist, 9. 270.

O. borealis. DC. Prodr. 2. 275. Hook. Fl. Bor.-Am. 1. 145. Don, Mill. 2. 249. Hook. & Arn. Bot. Beechey, 122. Torr. & Gray, Fl. 1. 338. Eat. & Wr. 338. Trautv. & Meyer, Fl. Ochot. 26. Dietr. 4. 1069. Seem. Bot. Herald, 28.

Var. **viscida.** Watson, King's Rep. 5. 77.

O. viscida. Nutt.; Torr. & Gray, Fl. 1. 341. Eat. & Wr. 338. Walp. Rep. 1. 693. Dietr. 4. 1068. Rothr. Pl. Wheeler, 37.

O. campestris? Pl. Bourgeau, 256.

Var. **speciosa.** Torr. & Gray, Fl. 1. 341. Gray, Pl. Fendl. 36.

O. deflexa. DC. Astrag. 96; Prodr. 2. 280, with syn. Richard. Journ. Frankl. 17. Hook. Fl. Bor.-Am. 1. 148; Lond. Journ. Bot. 6. 212. Don, Mill. 2. 253. Torr. & Gray, Fl. 1. 342. Eat. & Wr. 338. Hook. f. Journ. Linn. Soc. 1. 124; Arct. Pl. 289. Gray, Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 236. Pl. Bourgeau, 255. Porter, Hayd. Rep. 1870, 475; Fl. Col. 31. Rothr. Pl. Wheeler, 36.

Astragalus deflexus. Pall. Act. Petrop. 1779, 260, **t. 15.** L'Her. Stirp. Nov. 167, **t. 80.**

Astragalus hians. Jacq. Icon. Rar. **t. 252.**

Astragalus retroflexus. Pall. Astrag. **t. 27.**

O. foliolosa. Hook. Fl. Bor.-Am. 1. 146. Don, Mill. 2. 471. Torr. & Gray, Fl. 1. 339. Eat. & Wr. 338. Walp. Rep. 1. 693. Dietr. 4. 1068.

O. Lagopus. Nutt. in Journ. Acad. Philad. 7. 17. Torr. & Gray, Fl. 1. 340. Eat. & Wr. 338. Walp. Rep. 1. 694. Dietr. 4. 1068. Parry, Am. Naturalist, 8. 32.

O. Lamberti. Pursh, 740. Bradbury, Cat. 338. Nutt. Genera, 2. 98. Sims, Bot. Mag. **t. 2147.** James, Long's Exped. 2. 110. DC. Prodr. 2. 277. Torrey, Ann. Lyc. N. Y. 2. 178; Nicol. Rep. 148; Frem. Rep. 89; Stansb. Rep. 385; Sitgr. Rep. 158; Marcy's Rep. 284; Pac. R. Rep. 4. 80; Mex. Bound. 56; Bot. Wilkes, 279. Lindl. Bot. Reg. 13, **t. 1054.** Hook. Fl. Bor.-Am. 1. 147; Lond. Journ. Bot. 6. 212. Don, Mill. 2. 250. Torr. & Gray, Fl. 1. 339 & 693; Pac. R. Rep. 2. 126 & 163. Eat. & Wr. 338. Walp. Rep. 1. 693. Nees, Pl. Neuwied. 7. Dietr. 4. 1068. Gray, Pl. Lindh. 177; Pl. Fendl. 35; Pl. Wright. 1. 53 & 2. 45; Pac. R. Rep. 12. 42; Am. Journ. Sci. 2. 33. 410; Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 6. 236; Manual, 133. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 189. Pl. Bourgeau, 256. Porter, Hayd. Rep. 1870, 475; 1871, 481; Fl. Col. 30. Coulter, Hayd. Rep. 1872, 764. Rothr. Pl. Wheeler, 36.

Astragalus Lamberti. Poir. Suppl. 5. 564. Spreng. Syst. 3. 308.

O. Hookeriana. Nutt.; Torr. & Gray, Fl. 1. 340. Eat. & Wr. 338. Walp. Rep. 1. 694. Dietr. 4. 1068.

O. Plattensis. Nutt.; same citations. Torrey, Frem. Rep. 89.

O. sericea. Nutt.; same citations. Hook. in Lond. Journ. Bot. 6. 212. rey, Pac. R. Rep. 4. 80.

O. campestris. Hook. in Lond. Journ. Bot. 6. 212.

O. multiceps. Nutt.; Torr. & Gray, Fl. 1. 341. Eat. & Wr. 338. Walp 1. 693. Dietr. 4. 1068. Hook. in Lond. Journ. Bot. 6. 212. Gray, Proc. Philad. 1863, 61; Proc. Am. Acad. 6. 234. Porter, Hayd. Rep. 1871, 481; I 30. Rothr. Pl. Wheeler, 36.

O. nana. Gray, Am. Journ. Sci. 2. 33. 410.

O. nana. Nutt.; Torr. & Gray, Fl. 1. 340. Eat. & Wr. 338. Walp. Rep. Dietr. 4. 1068. Gray, Proc. Am. Acad. 6. 236. Coulter, Hayd. Rep. 18 Porter, Fl. Col. 30.

? *O. argentata.* Pursh, 473. Richard. in Journ. Frankl. 17. Hook. Fl. B 1. 146. Torr. & Gray, Fl. 1. 693.

O. nigrescens. Fisch.; DC. Prodr. 2. 278. See syn. in Ledeb. Fl. Ross. Trautvetter, Pl. Middend. 1. 49. — Hook. Fl. Bor.-Am. 1. 147. Torr. & G 1. 340. Eat. & Wr. 338. Dietr. 4. 1068. Hook. f. Journ. Linn. Soc. 1. 121 Arct. Pl. 289 & 324.

Astragalus nigrescens. Pall. Astrag. 65, **t. 63.**

O. podocarpa. Gray, Proc. Am. Acad. 6. 234. Brandegee, Fl. S. W. Col

O. arctica, var. *inflata.* Hook. Fl. Bor.-Am. 1. 146. Torr. & Gray, Fl. 1.

O. splendens. Dougl.; Hook. Fl. Bor.-Am. 1. 147. Don, Mill. 2. 251. Gray, Fl. 1. 341. Eat. & Wr. 338. Walp. Rep. 1. 690. Torrey, Nicol. Re Stansb. Rep. 385. Dietr. 4. 1069. Engelm. Pl. Upp. Miss. 189. Gray, Rep. 12. 42; Am. Journ. Sci. 2. 33. 410; Proc. Acad. Philad. 1863, 60; Pr Acad. 6. 236. Pl. Bourgeau, 256. Porter, Fl. Col. 31. Rothr. Pl. Wheeler,

Var. **Richardsoni.** Hook. Fl. Bor.-Am. 1. 147. Torr. & Gray, Fl. 1. 341.

O. oxyphylla. Richard. in Journ. Frankl. 17.

O. Uralensis. DC. Astrag. 68 & Prodr. 2. 276, with syn. See syn. also in Fl. Ross. 1. 593. — Richard. in Journ. Frankl. 18. Hook. Fl. Bor.-Am. 1. 145 Mill. 2. 249. Nutt. in Journ. Acad. Philad. 7. 18. Torr. & Gray, Fl. 1. 338 & Wr. 337. Walp. Rep. 1. 692. Torrey, Pac. R. Rep. 4. 80. Hook. f. in Linn. Soc. 1. 121 & 124; Arct. Pl. 289 & 324. Rothr. Pl. Alask. 445.

Astragalus Uralensis, Linn. Pall. Astrag. **t. 42.** Schlecht. Fl. Lab. in I 10. 99.

Var. **pumila.** Ledeb. Fl. Alt. 3. 290; Fl. Ross. 1. 594. Gray, Proc. Am. 6. 235. Porter, Fl. Col. 30.

O. arctica. R. Brown, Parry's 1st Voy. Appx. 278 (Regensb. Flora, 7², Bo DC. Prodr. 2. 276. Hook. Fl. Bor.-Am. 1. 146, in part. Don, Mill. 2. 249. & Arn. Bot. Beechey, 122. Torr. & Gray, Fl. 1. 338, in part. Eat. & W Trautv. Pl. Middend. 1. 49, with syn. Seem. Bot. Herald, 28 & 51. Pl. Bou 255. Gray, Proc. Acad. Philad. 1863, 60.

Astragalus arcticus. Spreng. Syst. 4². 288.

O. Uralensis, var. *arctica.* Ledeb. Fl. Ross. 1. 594.

O. arctica; podocarpa, Uralensis.
argentata; nana.
borealis; campestris.

O. campestris; Lamberti.
foliolosa; deflexa.
Hookeriana; Lamberti.

O. nana; multiceps.
acyphylla; splendens.
Plattensis; Lamberti.

O. polaris; Astragalus polaris.
sericea; Lamberti.
viscida; campestris.

PARKINSONIA aculeata. Linn. Spec. 375. Jacq. Stirp. Am. 121, **t. 80.** Lam. Ill. **t. 336.** DC. Mem. Legum. 11, **t. 21.** Griseb. Fl. Brit. W. Ind. 204; Pl. Lorentz. 81. Torrey, Mex. Bound. 59. Benth. in Mart. Fl. Bras. 15^2. 78, **t. 26.** Gray, Hall's Pl. Texas, 8. Brew. & Wats. Fl. Calif. 1. 162.

P. spinosa. HBK. Nov. Gen. 6. 335.

P. florida. Watson, Proc. Am. Acad. 11. 135. Brew. & Wats. Bot. Calif. 1. 135.

Cercidium floridum. Benth. in Gray, Pl. Wright. 1. 58. Walp. Ann. 4. 594.

P. microphylla. Torrey, Pac. R. Rep. 4. 82; Mex. Bound. 59. Walp. Ann. 7. 812. Gray, Ives's Rep. 11. Benth. in Mart. Fl. Bras. 15^2. 78. Watson, Pl. Wheeler, 8; Proc. Am. Acad. 11. 136. Brew. & Wats. Bot. Calif. 1. 162.

P. Texana. Watson, Proc. Am. Acad. 11. 136.

Cercidium Texanum. Gray, Pl. Wright. 1. 58 & 2. 50. Walp. Ann. 4. 594. Torrey, Mex. Bound. 59.

Hoopesia arborea, Buckley, in part. See under *Acacia flexicaulis.*

P. Torreyana. Watson, Proc. Am. Acad. 11. 135. Brew. & Wats. Bot. Calif. 1. 162.

Cercidium floridum. Torrey, Pac. R. Rep. 4. 11 & 82; same, 5. 360, **t. 3**; Mex. Bound. 59. Gray, Ives's Rep. 11.

PARRYELLA filifolia. Torr. & Gray; Gray, Proc. Am. Acad. 7. 397.

PETALOSTEMON candidus. Michx. Fl. 2. 49, **t. 37, fig. 1.** Persoon, 2. 268. Pursh, 461. James, Long's Exp. 2. 339. DC. Prodr. 2. 243. Torrey, Ann. Lyc. N. Y. 2. 177; Nicol. Rep. 148; Frem. Rep. 88; Emory's Rep. 403; Pac. R. Rep. 4. 78; Mex. Bound. 53. Hook. Fl. Bor.-Am. 1. 137; Comp. Bot. Mag. 1. 22. Don, Mill. 2. 222. Spach, Hist. Veg. 1. 245. Torr. & Gray, Fl. 1. 309; Pac. R. Rep. 2. 126 & 163. Eat. & Wr. 348. Dietr. 4. 1013. Gray, Pl. Fendl. 33; Pac. R. Rep. 12. 42; Manual, 130; Hall's Pl. Texas, 7. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 188. Lesqx. Fl. Ark. 356. Pl. Bourgeau, 255. Porter, Hayd. Rep. 1870, 474; Fl. Col. 23.

Dalea candida. Willd. Spec. 3. 1337. Spreng. Syst. 3. 326.

Psoralea candida. Poir. Dict. 5. 694.

Petalostemon virgatum. Nees, Pl. Neuwied. 6.

Var. **multifoliolatus.** Gray, Hall's Pl. Texas, 7.

P. carneus. Michx. Fl. 2. 49. Persoon, 2. 268. Pursh, 461. Elliott, 2. 176. DC. Prodr. 2. 243. Don, Mill. 2. 222. Spach, Hist. Veg. 1. 246. Torr. & Gray, Fl. 1. 311. Eat. & Wr. 348. Dietr. 4. 1014. Chapman, 93. Wood, Bot. & Fl. 94.

Psoralea carnea. Poir. Dict. 5. 694.

Dalea carnea. Spreng. Syst. 3. 326.

P. corymbosus. Michx. Fl. 2. 50. Persoon, 2. 268. Pursh, 461. Elliott, 2. 176. DC. Prodr. 2. 244. Don, Mill. 2. 223. Spach, Hist. Veg. 1. 246. Torr. & Gray, Fl. 1. 311. Eat. & Wr. 348. Dietr. 4. 1014. Chapman, 93. Wood, Bot. & Fl. 94.

Anonymos pinnatifida. Walter, 102.

Kuhnistera Carolinensis. Lam. Dict. 3. 370.

Dalea Kuhnistera. Willd. Spec. 3. 1337. Spreng. Syst. 3. 327.

Psoralea corymbosa. Poir. Dict. 5. 694.

Cylipogon virgatum. Raf. Journ. Phys. 1819, 97.

Var. *β.* Curtis, Am. Journ. Sci. 2. 7. 406 (Bot. Zeit. 8. 529).

Gatesia Alabamensis. Bertol. Bot. Misc. 7. 31, **t. 1** (Bot. Zeit. 9. 899); Gray in Am. Journ. Sci. 2. 14. 115.

P. decumbens. Nutt. in Journ. Acad. Philad. 7. 93. Torr. & Gray, Fl. 1. Eat. & Wr. 348. Walp. Rep. 1. 652. Dietr. 4. 1014. Gray, Pl. Wright. 1. 46.

P. emarginatus. Torr. & Gray, Fl. 1. 311. Eat. & Wr. 348. Walp. Rep. 1. Dietr. 4. 1014. Torrey, Mex. Bound. 53. Gray, Hall's Pl. Texas, 7. Young, Texas, 221.

P. exilis. Gray, Pl. Wright. 2. 41. Walp. Ann. 4. 481. Torrey, Mex. Bound.

P. flavescens. Watson, Am. Naturalist, 7. 299.

P. foliosus. Gray, Proc. Am. Acad. 7. 336; Manual, 679.

P. gracilis. Nutt. in Journ. Acad. Philad. 7. 92. Torr. & Gray, Fl. 1. 309. & Wr. 348. Walp. Rep. 1. 651. Dietr. 4. 1013. Gray, Pl. Fendl. 33. Tor Marcy's Rep. 283; Mex. Bound. 53. Chapman, 93. Wood, Bot. & Fl. 94.

P. bicolor. Bertol. Bot. Misc. 9. 9, **t. 3, fig. 1** (Bot. Zeit. 9. 902); fide Gray, Journ. Sci. 2. 14. 115.

Var. **oligophyllus.** Torrey, Emory's Rep. 139.

P. griseus. Torr. & Gray, Fl. 1. 310. Eat. & Wr. 349. Walp. Rep. 1. 651. D 4. 1014. Young, Fl. Texas, 220.

P. macrostachyus. Torrey, Ann. Lyc. N. Y. 2. 176; Bot. Wilkes, 270. Mill. 2. 222. Torr. & Gray, Fl. 1. 309 in part, & 690. Eat. & Wr. 348. Rep. 1. 651. Dietr. 4. 1013. Gray, Pl. Fendl. 33; Proc. Acad. Philad. 186 Engelm. Pl. Upp. Miss. 189. Watson, Am. Naturalist, 7. 300. Porter, Fl. Col.

Dalea compacta. Spreng. Syst. 3. 327.

P. multiflorus. Nutt. in Journ Acad. Philad. 7. 92. Torr. & Gray, Fl. 1. Eat. & Wr. 348. Walp. Rep. 1. 651. Engelm. & Gray, Pl. Lindh. 7. Dietr. 4. 1 Engelm. Pl. Upp. Miss. 189. Torrey, Marcy's Rep. 283; Pac. R. Rep. 4. 78. G Pl. Wright. 1. 46; Hall's Pl. Texas, 7. Young, Fl. Texas, 220.

P. obovatus. Torr. & Gray, Fl. 1. 310. Eat. & Wr. 348. Walp. Rep. 1. Engelm. & Gray, Pl. Lindh. 7. Dietr. 4. 1014. Gray, Pl. Lindh. 31; Pl. Fe 33. Young, Fl. Texas, 221.

Dalea agastachya. Moric. Pl. Nouv. 65, **t. 44.** Walp. Rep. 2. 513.

P. ornatus. Dougl.; Hook. Fl. Bor.-Am. 1. 138. Don, Mill. 2. 470. Wats Am. Naturalist, 7. 300.

P. macrostachyus. Torr. & Gray, Fl. 1. 309, in part. Hook. & Arn. B Beechey, 333.

Dalea ornata. Eat. & Wr. 219.

P. phleoides. Torr. & Gray, Fl. 1. 310. Eat. & Wr. 348. Walp. Rep. 1. 6 Dietr. 4. 1014. Young, Fl. Texas, 221.

Var. **microphyllus.** Engelm. & Gray, Pl. Lindh. 7. Gray, Hall's Pl. Texas,

P. roseum. Nutt. in Am. Journ. Sci. 1. 5. 298. DC. Prodr. 2. 243. Don, M 2. 222. Chapman, Coult. Bot. Gazette, 3. 4.

P. Searlsiæ. Gray, Proc. Am. Acad. 8. 380. Watson, Am. Naturalist, 7. 300.

P. tenuifolius. Gray, Proc. Am. Acad. 11. 73.

P. villosus. Nutt. Genera, 2. 85. Torrey, Am. Journ. Sci. 1. 4. 66; Ann. I N. Y. 2. 177; Marcy's Rep. 284; Pac. R. Rep. 4. 78. DC. Prodr. 2. 244. Don, M 2. 222. Torr. & Gray, Fl. 1. 310 & 690. Eat. & Wr. 348. Dietr. 4. 1013. G

Pl. Fendl. 33; Manual, 130. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 189. Pl. Bourgeau, 255.

Dalea villosa. Spreng. Syst. 3. 326.

P. violaceus. Michx. Fl. 2. 50, t. **37**, f. **2.** Persoon, 2. 268. Pursh, 461. Sims, Bot. Mag. t. **1707.** Nutt. Genera, 2. 85. James, Long's Exp. 2. 339. DC. Prodr. 2. 243. Torrey, Ann. Lyc. N. Y. 2. 177; Nicol. Rep. 148; Frem. Rep. 88; Marcy's Rep. 283; Emory's Rep. 408; Pac. R. Rep. 4. 78. Hook. Fl. Bor.-Am. 1. 137; Comp. Bot. Mag. 1. 22. Don, Mill. 2. 222. Spach, Hist. Veg. 1. 245. Torr. & Gray, Fl. 1. 310; Pac. R. Rep. 2. 126 & 163. Eat. & Wr. 348. Nees, Pl. Neuwied. 6. Engelm & Gray, Pl. Lindh. 7. Dietr. 4. 1014. Gray, Pl. Fendl. 33; Pac. R. Rep. 12. 42; Manual, 130; Hall's Pl. Texas, 7. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 189. Pl. Bourgeau, 255. Porter, Hayd. Rep. 1870, 474; Fl. Col. 23. Young, Fl. Texas, 221.

Dalea purpurea. Vent. Hort. Cels, t. **40.** Poir. in Lam. Ill. 3. 675, t. **980.**

Dalea violacea. Willd. Spec. 3. 1337. Spreng. Syst. 3. 327.

Psoralea purpurea. Poir. Dict. 5. 694.

Var. **pubescens.** Gray, Pl. Lindh. 176; Pl. Fendl. 33; Pl. Wright. 1. 46.

P. virgatus. Scheele, Linnæa, 21. 461. Walp. Ann. 2. 359.

P. alopecuroides; Dalea alopecuroides.
bicolor; gracilis.
capitatus; Dalea aurea.
P. macrostachyus; ornatus.
roseus; carneus.
virgatus; candidus.

PETERIA scoparia. Gray, Pl. Wright. 1. 50 & 2. 35. Walp. Ann. 4. 481. Torrey, Mex. Bound. 51. Brandegee, Fl. S. W. Col. 234.

***P.* Thompsonæ.** Watson, Am. Naturalist, 7. 300.

PHACA. See under *Astragalus.*

P. andina; Astragalus alpinus.
annua; A. Geyeri.
argophylla; A. triphyllus.
astragalina; A. alpinus, tener.
australis; A. Hallii.
cæspitosa; A. triphyllus.
Candolliana; A. triflorus.
canescens; A. leucopsis.
cretacea; A. Missouriensis.
densifolia; A. Crotalariæ, Menziesii.
digitata; A. tridactylicus.
elegans; A. oroboides.
elongata; A. flexuosus.
Floridana; Sesbania vesicaria.
inflata; A. Menziesii.
P. longifolia; Astragalus pictus.
macrocarpa; A. lonchocarpus.
mollissima; A. Purshii, Utahensis.
neglecta; A. Cooperi.
nigrescens; A. multiflorus.
Nuttallii; A. Menziesii.
parviflora; A. oroboides.
parvifolia; A. gracilis.
pauciflora; A. leptaleus.
podocarpa; A. sclerocarpus.
pygmæa; A. Chamæleuce.
sericea; A. sericoleucus.
villosa; A. mollissimus.
—— ? A. Webberi.

PHASEOLUS acutifolius. Gray, Pl. Wright. 1. 43 & 2. 32. Seem. Bot. Herald, 281. Walp. Ann. 4. 562.

P. angustissimus. Gray, Pl. Wright. 2. 33. Walp. Ann. 4. 562. Torrey, Mex. Bound. 50.

P. atropurpureus. Moç. Icon. Fl. Mex. ined. t. **244.** DC. Prodr. 2. 395. Dietr. 1194. Torrey, Mex. Bound. 50. Gray, Proc. Am. Acad. 5. 156, with var.

P. diversifolius. Persoon, 2. 296. Poir. Suppl. 3. 6. DC. Prodr. 2. 394. Mill. 2. 355. Hook. Comp. Bot. Mag. 1. 24. Beck, Bot. 92. Torr. & Gr 1. 279 Eat. & Wr. 353. Torrey, Fl. N. Y. 1. 160; Pac. R. Rep. 4. 77. Gr Lindh. 170; Pl. Wright. 1. 44; Manual, 140. Parry, Pl. Minn. 610. man, 106.

P. angulosus. Ort. Nov. Pl. 24. Persoon, 2. 295. Savi, Diss. 2. 1. DC. 2. 395. Spreng. Syst. 3. 254. Don, Mill. 2. 355.

Glycine angulosa. Muhl.; Willd. Spec. 3. 1056. Persoon, 2. 300. Ait. Kew. 4. 296. Elliott, Journ. Acad. Philad. 1. 325.

? *Glycine Virginica.* Spreng. in Schrad. Bot. Journ. 4. 198.

P. trilobus. Michx. Fl. 2. 60. Pursh, 470. Bigel. Fl. Bost. 286.

? *Glycine pedunculosa.* Raf. Med. Rep. 5. 364. Desv. Journ. Bot. 1. 227 Suppl. 5. 693.

? *Glycine angulata.* Desv. Journ. Bot. 3. 78. DC. Prodr. 2. 242. Dc 2. 221. Eat. & Wr. 256. Dietr. 4. 1175.

Strophostyles angulosa. Elliott, 2. 229. Torrey, Compend. 270.

Dolichos (?) *angulosus.* DC. Prodr. 2. 399. Don, Mill. 2. 359.

P. filiformis. Benth. Bot. Sulph. 13. Walp. Rep. 2. 537. Gray, Proc. An 5. 156. (Lower California.)

P. helvolus. Linn. Spec. 724. Hill, Veg. Syst. 20, **t. 57, fig. 3.** Wal Lam. Dict. 3. 73. Willd. Spec. 3. 1032. Michx. Fl. 2. 60. Persoon, 2. 29 f. Hort. Kew. 4. 289. Pursh, 470. DC. Prodr. 2. 395. Hook. Fl. Bor.-An Don, Mill. 2. 355. Beck, Bot. 92. Torr. & Gray, Fl. 1. 280. Eat. & Walp. Rep. 1. 774. Torrey, Fl. N. Y. 1. 161. Dietr. 4. 1192. Gray, Pl. Fe Pl. Wright. 1. 44; Manual, 140. Chapman, 106.

P. vexillatus. Walter, 182, not Linn. Pursh, 470. DC. Prodr. 2. 395, Don, Mill. 2. 355. Beck, Bot. 92. Spach, Hist. Veg. 1. 327. Darling Cestr. 430.

Glycine umbellata. Muhl.; Willd. Spec. 3. 1058. Spreng. in Schrad. Bo 4. 198. Persoon, 2. 300. Poir. Suppl. 2. 708. Elliott, Journ. Acad. Philad

Glycine pedunculuris. Muhl. Cat. 67. Barton, Prodr. Fl. Philad. liott, l. c.

P. pedunculuris & var. *parabolicus.* Barton, Comp. Fl. Philad. 2. 81.

Glycine Helvola. Elliott, Journ. Acad. Philad. 1. 326 (Litt.-Ber. zu 1828, 164).

Dolichos vexillatus & parabolicus. Nutt. Genera, 2. 112.

Strophostyles peduncularis. Elliott, 2. 230.

Strophostyles Helvola. Elliott, 2. 230. Torrey, Compend. 270.

Dolichos helvolus. Nutt. Genera, 2. 112. Spreng. Syst. 3. 250.

P. macropoides. Gray, Pl. Wright. 2. 33. Walp. Ann. 4. 560. Torr Bound. 50.

P. pauciflorus. Benth. Comm. Legum. Gen. 76. Walp. Rep. 1. 775. 4. 1193. Gray, Pl. Wright. 1. 44; Manual, 141; Hall's Pl. Texas, 7. En Upp. Miss. 188. Torrey, Pac. R. Rep. 4. 77.

P. leiospermus. Torr. & Gray, Fl. 1. 280. Eat. & Wr. 353. Walp. Re Torrey, Nicol. Rep. 147; Sitgr. Rep. 158. Dietr. 4. 1192. Gray, Pl. Fend

P. perennis. Walter, 182. Muhl. Ind. Fl. Lanc. 175. Willd. Spec. Enum. 753. Persoon, 2. 295. Poir. Suppl. 3. 5. Pursh, 469. Elliott, Jou Philad. 1. 324 (Litt.-Ber zu Linnæa, 1828, 164); Sketch, 2. 228. DC. Prod Spreng. Syst. 3. 253. Torrey, Compend. 270; Ann. Lyc. N. Y. 2. 180;

1. 160, t. **23.** Don, Mill. 2. 349. Beck, Bot. 91. Hook. Comp. Bot. Mag. 1. 24. Darling. Fl. Cestr. 429. Torr. & Gray, Fl. 1. 279. Eat. & Wr. 352. Dietr. 4. 1189. Chapman, 106. Gray, Manual, 140.

Dolichos polystachyus. Linn. Spec. 726. Hill, Veg. Syst. 21, t. **20.** Lam. Dict. 2. 298. Willd. Spec. 3. 1049.

P. paniculatus. Michx. Fl. 2. 60. Persoon, 2. 295. Poir. Suppl. 3. 5.

P. macrostachys. Elliott, Journ. Acad. Philad. 1. 324 (Litt.-Ber. zu Linnæa, 1828, 164). DC. Prodr. 2. 391. Don, Mill. 2. 349.

P. retusus. Benth. Pl. Hartw. 11. Walp. Rep. 1. 770. Gray, Pl. Lindh. 170; Pl. Wright. 1. 43 & 2. 32. Torrey, Mex. Bound. 49.

P. maculatus. Scheele, Linnæa, 21. 465.

P. rotundifolius. Gray, Pl. Wright. 2. 34. Walp. Ann. 4. 561.

P. sinuatus. Nutt.; Torr. & Gray, Fl. 1. 279. Eat. & Wr. 352. Walp. Rep. 1. 770. Dietr. 4. 1189. Gray, Pl. Wright. 1. 43. Chapman, 106.

P. Wrightii. Gray, Pl. Wright. 1. 43 & 2. 33. Walp. Ann. 4. 562. Torrey, Mex. Bound. 49.

P. angulosus; diversifolius.
Caribæus; Rhynchosia minima.
frutescens; Wistaria frutescens.
latifolius; Rhynchosia latifolia.
leiospermus; pauciflorus.
macrostachys; perennis.
maculatus; retusus.
menispermoideus; Rhynchosia menispermoidea.
P. monoicus; Amphicarpæa monoica.
paniculatus; perennis.
parabolicus & pedunculoris; helvolus.
Pitcheri; Amphicarpæa monoica.
reniformis; Rhynchosia tomentosa.
trilobus; diversifolius.
tuberosus; Apios tuberosa.
vexillatus; helvolus.

PICKERINGIA montana. Nutt.; Torr. & Gray, Fl. 1. 389. Durand, Pl. Pratten. 86. Torrey, Mex. Bound. 51, t. **14**; Bot. Wilkes, 282. Bolander, Proc. Calif. Acad. 3. 79; Cat. 10. Brew. & Wats. Bot. Calif. 1. 114.

PISCIDIA Erythrina. Linn. Spec. 2 ed. 993. Lam. Dict. 1. 433; Ill. t. **605.** DC. Prodr. 2. 267, with syn. Nutt. Sylva, 2. 31, t. **52.** Griseb. Fl. Brit. W. Ind. 200. Chapman, 110.

PITHECOLOBIUM brevifolium. Benth. in Gray, Pl. Wright. 1. 67; Rev. Mim. in Trans. Linn. Soc. 30. 592. Torrey, Mex. Bound. 62.

Acacia Nueciana. Buckley, Proc. Acad. Philad. 1861, 453; fide Gray, same, 1862, 163.

P. dulce. Benth. in Hooker's Lond. Journ. Bot. 3. 199; Rev. Mim. 572, with syn. (Sonora.)

P. Unguis-Cati. Benth. in Hook. Lond. Journ. Bot. 3. 200; Rev. Mim. 572 & 648, with syn. Griseb. Fl. Brit. W. Ind. 226. Chapman, 116.

Inga Unguis-Cati. Willd. Spec. 4. 1006. Nutt. Sylva, 2. 37, t. **54.**

P. Guadalupense. Nutt. Sylva, 2. 40, t. **55.** Chapman, 116.

PROSOPIS cinerascens. Benth. Rev. Mim. in Trans. Linn. Soc. 30. 381. Watson, King's Rep. 5. 420. Brew. & Wats. Bot. Calif. 1. 103.

P. reptans. Benth. in Hook. Journ. Bot. 4. 352, in part.

Strombocarpa cinerascens. Gray, Pl. Wright. 1. 61. Walp. Ann. 4. 614. Torrey, Mex. Bound. 60.

Mimosa calcarea. Buckley, Proc. Acad. Philad. 1861, 453; fide Gray, same, 1862, 163.

P. juliflora. DC. Prodr. 2. 447. Benth. Rev. Mim. 377, with syn. Brew. & Wat Bot. Calif. 1. 163.

P. glandulosa. Torrey, Ann. Lyc. N. Y. 2. 192, t. 2; Emory's Rep. 139; Pac. R Rep. 4. 82. Don, Mill. 2. 400. Dietr. 2. 1424. Eat. & Wr. 376. Walp. Re 1. 861. Benth. in Hook. Journ. Bot. 4. 348; Lond. Journ. Bot. 5. 81. Griseb. F Brit. W. Ind. 217. Watson, King's Rep. 5. 420; Pl. Wheeler, 8. Gray, Hall's P Texas, 7.

Algarobia glandulosa. Torr. & Gray, Fl. 1. 399; Pac. R. Rep. 2. 164. Engel & Gray, Pl. Lindh. 34. Engelm. in Wisliz. Rep. 10. Scheele, Roem. Texas, 4 Gray, Pl. Lindh. 181; Pl. Wright. 1. 60 & 2. 51; Pl. Thurb. 304; Ives's Rep. Torrey, Sitgr. Rep. 158; Pac. R. Rep. 4. 20 & 82; same, 7. 10; Mex. Bound. 60.

P. odorata. Torrey, Frem. Rep. 313, t. 1, excl. fruit.

P. (?) heterophylla. Benth. Rev. Mim. 379. (Sonora.)

P. pubescens. Benth. in Lond. Journ. Bot. 5. 82; Rev. Mim. 380. Walp. A 1. 259. Watson, King's Rep. 5. 420; Pl. Wheeler, 8. Brew. & Wats. Bot. Ca 1. 163.

P. odorata. Torrey, Frem. Rep. 313, t. 1, as to fruit.

P. Emoryi. Torrey, Emory's Rep. 139.

Strombocarpa pubescens. Gray, Pl. Wright. 1. 60 & 2. 51; Ives's Rep. 9. T & Gray, Pac. R. Rep. 2. 163. Torrey, same, 4. 11, 20 & 82, 7. 10, & 5. 360, t Mex. Bound. 60.

Strombocarpa odorata. Torrey, Sitgr. Rep. 158.

PSORALEA argophylla. Pursh, 475. Poir. Suppl. 4. 588. Spreng. S 3. 200. Hook. Fl. Bor.-Am. 2. 136, t. 52. Torr. & Gray, Fl. 1. 301. Torrey, N Rep. 147; Frem. Rep. 88; Marcy's Rep. 283. Dietr. 4. 1025. Gray, Pl. Fe 31; Pac. R. Rep. 12. 41; Proc. Acad. Philad. 1863, 60; Manual, 129. Parry, Minn. 611. Engelm. Pl. Upp. Miss. 188. Durand, Fl. Utah, 161. Pl. Bourge 255. Porter, Fl. Col. 22.

P. incana. Nutt. in Fras. Cat. 1813; Genera, 2. 102. James, Long's Exp 2. 336. DC. Prodr. 2. 219. Don, Mill. 2. 203. Eat. & Wr. 377. Nees, Pl. N wied. 7.

Var. **decumbens.** Gray, Pac. R. Rep. 12. 41.

P. Californica. Watson; Gray, in Proc. Am. Acad. 12. 251.

P. campestris. Nutt.; Torr. & Gray, Fl. 1. 301. Eat. & Wr. 378. Walp. Re 1. 659. Torrey, Frem. Rep. 88. Dietr. 4. 1025. Engelm. Pl. Upp. Miss. 188.

P. canescens. Michx. Fl. 2. 57. Poir. Dict. 5. 687. Persoon, 2. 347. Pursh 475. James, Cat. 186. Elliott, 2. 195. DC. Prodr. 2. 220. Spreng. Syst. 3. 19 Torrey, Ann. Lyc. N. Y. 2. 175. Don, Mill. 2. 204. Torr. & Gray, Fl. 1. 301. Ea & Wr. 378. Dietr. 4. 1024. Chapman, 92. Wood, Bot. & Fl. 92.

P. cuspidata. Pursh, 741. Poir. Suppl. 4. 590. Bradbury, Cat. 338. Nut Genera, 2. 102. James, Cat. 186. DC. Prodr. 2. 219. Spreng. Syst. 3. 201. To rey, Ann. Lyc. N. Y. 2. 175; Nicol. Rep. 148; Pac. R. Rep. 4. 77. Don, Mill. 2. 20 Torr. & Gray, Fl. 1. 688; Pac. R. Rep. 2. 163. Eat. & Wr. 378. Gray, Pl. Lind 172; Pl. Wright. 2. 37; Pac. R. Rep. 12. 42; Hall's Pl. Texas, 7. Engelm. Pl. Up Miss. 188. Porter, Fl. Col. 22.

P. macrorhiza. Nutt. in Fras. Cat. 1813.

P. cryptocarpa. Torr. & Gray, Fl. 1. 301. Eat. & Wr. 379. Walp. Rep. 1. 6 Dietr. 4. 1025. Young, Fl. Texas, 219.

P. Rœmeriana. Scheele, Linnæa, 21. 463.

P. cyphocalyx. Gray, Pl. Lindh. 172; Pl. Wright. 1. 45. Walp. Ann. 2. 361.

P. palmata. Buckley, Proc. Acad. Philad. 1861, 451; fide Gray in same, 1862, 162.

P. digitata. Nutt.; Torr. & Gray, Fl. 1. 300; Pac. R. Rep. 2. 163. Eat. & Wr. 379. Walp. Rep. 1. 658. Dietr. 4. 1024. Engelm. Pl. Upp. Miss. 188. Torrey, Pac. R. Rep. 4. 77. Gray, Hall's Pl. Texas, 7. Porter, Fl. Col. 22.

P. esculenta. Pursh, 475, t. **22.** Poir. Suppl. 4. 589. Bradbury, Cat. 338. Nutt. Genera, 2. 102. James, Long's Exped. 2. 336. DC. Prodr. 2. 219. Spreng. Syst. 3. 200. Torrey, Ann. Lyc. N. Y. 2. 175; Nicol. Rep. 147; Marcy's Rep. 283; Emory's Rep. 138 & 407; Mex. Bound. 51. Don, Mill. 2. 203. Spach, Hist. Veg. 1. 231. Torr. & Gray, Fl. 1. 302; Pac. R. Rep. 2. 163. Eat. & Wr. 377. Dietr. 4. 1025. Hook. in Lond. Journ. Bot. 6. 208. Parry, Pl. Minn. 611. Gray, Pl. Wright. 2. 37; Pac. R. Rep. 12. 42; Manual, 129; Hall's Pl. Texas, 7. Engelm. Pl. Upp. Miss. 188. Pl. Bourgeau, 255. Wood, Bot. & Fl. 93. Young, Fl. Texas, 219.

P. brachiata. Dougl.; Hook. Fl. Bor.-Am. 1. 137, t. **53.** Don, Mill. 2. 409. Torr. & Gray, Fl. 1. 301 & 688. Eat. & Wr. 378. Walp. Rep. 1. 659. Pl. Bourgeau, 255.

P. hypogæa. Nutt.; Torr. & Gray, Fl. 1. 302. Eat. & Wr. 378. Walp. Rep. 1. 659. Dietr. 4. 1025. Hook. in Lond. Journ. Bot. 6. 208. Engelm. in Wisliz. Rep. 4. Porter, Fl. Col. 22.

Var. **scaposa.** Gray, Pl. Lindh. 173; Pl. Wright. 1. 45.

P. lanceolata. Pursh, 475. Poir. Suppl. 4. 588. Spreng. Syst. 3. 200. Hook. Fl. Bor.-Am. 1. 135, t. **51**; Lond. Journ. Bot. 6. 208. Torr. & Gray, Fl. 1. 299. Eat. & Wr. 377. Torrey, Nicol. Rep. 148; Frem. Rep. 88; Bot. Wilkes, 269. Dietr. 4. 1024. Engelm. Pl. Upp. Miss. 188. Gray, Pac. R. Rep. 12. 41; Ives's Rep. 9; Am. Journ. Sci. 2. 33. 411; Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 8. 380. Watson, King's Rep. 5. 63. Porter, Hayd. Rep. 1870, 474; 1871, 480; Fl. Col. 21. Coulter, Hayd. Rep. 1872, 764. Rothrock, Pl. Wheeler, 36. Brew. & Wats. Fl. Col. 1. 140.

P. elliptica. Pursh, 741. Poir. Suppl. 4. 588. Bradbury, Cat. 338. Spreng. Syst. 3. 200.

P. arenaria. Nutt. Genera, 2. 102. James, Cat. 186. DC. Prodr. 2. 219. Torrey, Ann. Lyc. N. Y. 2. 175. Don, Mill. 2. 203.

P. laxiflora & scabra. Nutt.; Torr. & Gray, Fl. 1. 299 & 300. Eat. & Wr. 378 & 379. Walp. Rep. 1. 658. Dietr. 4. 1024.

P. linearifolia. Torr. & Gray, Fl. 1. 300. Eat. & Wr. 379. Walp. Rep. 1. 658. Dietr. 4. 1024. Torrey, Pac. R. Rep. 4. 77. Gray, Hall's Pl. Texas, 7.

P. Lupinellus. Michx. Fl. 2. 58. Poir. Dict. 5. 690. Persoon, 2. 347. Pursh, 476. Nutt. Genera, 2. 102. Elliott, 2. 196. DC. Prodr. 2. 220. Spreng. Syst. 3. 200. Don, Mill. 2. 204. Torr. & Gray, Fl. 1. 302. Eat. & Wr. 378. Dietr. 4. 1025. Chapman, 92. Wood, Bot. & Fl. 92.

P. macrostachys. DC. Prodr. 2. 220. Spreng. Syst. 4². 270. Hook. Fl. Bor.-Am. 1. 136. Don, Mill. 2. 204. Lindl. Bot. Reg. 21, t. **1769.** Hook. & Arn. Bot. Beechey, 332. Torr. & Gray, Fl. 1. 304 & 689. Benth. Bot. Sulph. 11. Dietr. 4. 1026. Torrey, Mex. Bound. 51; Bot. Wilkes, 269. Brew. & Wats. Bot. Calif. 1. 140.

P. strobilina, var. *β.* Torr. & Gray, Fl. 1. 689.

P. melilotoides. Michx. Fl. 2. 58. Vent. Hort. Malm. t. **94.** Poir. Dict. 5. 688. Pursh, 475. Sims, Bot. Mag. t. **2063.** Ker, Bot. Reg. 6, t. **454.** Barton, Fl. N. Am. 2. 63, t. **57.** Elliott, 2. 197. DC. Prodr. 2. 220. Spreng. Syst. 3. 199. Don,

Mill. 2. 204. Torr. & Gray, Fl. 1. 303. Eat. & Wr. 378. Walp. Rep. 1. 659. D. 4. 1025. Lesqx. Fl. Ark. 355. Chapman, 92. Gray, Manual, 129.

Trifolium psoraloides. Walter, 184.

Psoralea Melilotus. Persoon, 2. 347.

Melilotus psoraloides. Nutt. Genera, 2. 104.

Psoralea eglandulosa. Elliott, 2. 198. DC. Prodr. 2. 220. Don, Mill. 2. Hook. Comp. Bot. Mag. 1. 22. Torr. & Gray, Fl. 1. 303. Eat. & Wr. 378. D 4. 1025.

P. micrantha. Gray, Pac. R. Rep. 4. 77.

P. multijuga. Elliott, 2. 198. DC. Prodr. 2. 220. Spreng. Syst. 4². 271. Mill. 2. 204. Torr. & Gray, Fl. 1. 304. Eat. & Wr. 378. Dietr. 4. 1026. C man, 92. Wood, Bot. & Fl. 92.

P. Onobrychis. Nutt. Genera, 2. 104. Ker, Bot. Reg. 6, t. **453** (Spreng. Entdeck. 2. 185). DC. Prodr. 2. 220. Spreng. Syst. 3. 199. Torrey, Ann. N. Y. 2. 175. Don, Mill. 2. 204. Torr. & Gray, Fl. 1. 304 & 688. Eat. & Wr. Dietr. 4. 1025. Chapman, 92. Gray, Manual, 129.

Stylosanthes racemosa. Nutt. in Fras. Cat. 1813.

P. latifolia. Torrey, Ann. Lyc. N. Y. 2. 176. Don, Mill. 2. 204.

P. orbicularis. Lindl. Bot. Reg. 23, t. **1971.** Hook. & Arn. Bot. Beechey, Torr. & Gray, Fl. 1. 304 & 689. Eat. & Wr. 379. Walp. Rep. 1. 660. B Bot. Sulph. 11. Dietr. 4. 1026. Durand, Pl. Pratten. 85. Torrey, Mex. Bo 51; Bot. Wilkes. 269. Boland. Cat. 10. Brew. & Wats. Bot. Calif. 1. 139.

P. physodes. Dougl.; Hook. Fl. Bor.-Am. 1. 136. Don, Mill. 2. 469. Hoo Arn. Bot. Beechey, 333. Torr. & Gray, Fl. 1. 304 & 689. Eat. & Wr. 377. W Rep. 1. 659. Dietr. 4. 1026. Torrey, Pac. R. Rep. 4. 77; Mex. Bound. 51; Wilkes, 269. Cooper, Pac. R. Rep. 12. 58. Boland. Cat. 9. Gray, Proc. Acad. 8. 380. Brew. & Wats. Bot. Calif. 1. 139.

P. rhombifolia. Torr. & Gray, Fl. 1. 303 & 688. Eat. & Wr. 379. Walp. 1. 659. Dietr. 4. 1025. Engelm. & Gray, Pl. Lindh. 6. Gray, Hall's Pl. Texa Young, Fl. Texas, 219.

P. simplex. Nutt.; Torr. & Gray, Fl. 1. 303. Eat. & Wr. 379. Walp. 1. 659. Dietr. 4. 1025. Gray, Hall's Pl. Texas, 7. Young, Fl. Texas, 219.

P. stipulata. Torr. & Gray, Fl. 1. 688. Dietr. 4. 1026. Walp. Ann. 3. 849. C Manual, 129.

P. strobilina. Hook. & Arn. Bot. Beechey, 332, t. **80.** Torr. & Gray, Fl. 1. excl. var. Walp. Rep. 1. 660. Dietr. 4. 1026. Brew. & Wats. Bot. Calif. 1. 1

P. macrostachya, var. *β.* Torr. & Gray, Fl. 1. 304.

P. subacaulis. Torr. & Gray, Fl. 1. 302. Eat. & Wr. 378. Walp. Rep. 1. Dietr. 4. 1025. Chapman, 92. Wood, Bot. & Fl. 93.

P. tenuiflora. Pursh, 475. Poir. Suppl. 4. 589. Bradbury, Cat. 338. Genera, 2. 103. James, Cat. 186. DC. Prodr. 2. 220. Spreng. Syst. 3. 200. Mill. 2. 204. Torr. & Gray, Fl. 1. 299 & 688. Eat. & Wr. 378. Nees, Pl. Neu 7. Torrey, Frem. Rep. 88. Dietr. 4. 1024.

P. floribunda. Nutt.; Torr. & Gray, Fl. 1. 300 & 688; Pac. R. Rep. 2. 163. & Wr. 378. Walp. Rep. 1. 658. Torrey, Frem. Rep. 88; Emory's Rep. 138 & Marcy's Rep. 283; Sitgr. Rep. 158; Mex. Bound. 51. Engelm. & Gray, Pl. Li 7. Dietr. 4. 1024. Hook. in Lond. Journ. Bot. 6. 208. Gray, Pl. Fendl. 31; Lindh. 173; Pl. Wright. 2. 37; Proc. Acad. Philad. 1863, 60; Manual, 129. gelm. Pl. Upp. Miss. 188. Porter, Hayd. Rep. 1870, 474; Fl. Col. 22. Rothr Wheeler, 36. Brew. & Wats. Bot. Calif. 1. 140.

Var. **obtusiloba.**

P. obtusiloba. Torr. & Gray, Fl. 1. 300 & 688; Pac. R. Rep. 2. 126 & 163. Eat. & Wr. 378. Walp. Rep. 1. 658. Dietr. 4. 1024. Engelm. & Gray, Pl. Lindh. 7. Young, Fl. Texas, 218.

P. virgata. Nutt. Genera, 2. 104. Elliott, 2. 197. DC. Prodr. 2. 218. Spreng. Syst. 3. 198. Don, Mill. 2. 203. Torr. & Gray, Fl. 1. 303. Eat. & Wr. 378. Dietr. 4. 1025. Chapman, 92. Wood, Bot. & Fl. 92.

P. alnifolia & *alopecurina*; Rhynchosia tomentosa.
alopecuroides; Dalea alopecuroides, Rhynchosia tomentosa.
arenaria; lanceolata.
aurea; Dalea aurea.
brachiata; esculenta.
candida; Petalostemon candidus.
carnea; Petalostemon carneus.
corymbosa; P. corymbosus.
cryptocarpa; cuspidata.
Dalea; Dalea alopecuroides.
eglandulosa; melilotoides.
elliptica; lanceolata.
floribunda; tenuiflora.
incana; argophylla.
P. Jamesii; Dalea Jamesii.
latifolia; Onobrychis.
laxiflora; lanceolata, Dalea laxiflora.
longifolia; Astragalus pictus.
macrorhiza; cuspidata.
macrostachya; strobolina.
Melilotus; melilotoides.
obtusiloba; tenuiflora.
palmata; cyphocalyx.
parviflora; Astragalus gracilis.
pedunculata; Dalea alopecuroides.
purpurea; Petalostemon violaceus.
Roemeriana; cuspidata.
scabra; lanceolata.
strobolina; macrostachya.

RHYNCHOSIA Caribæa. DC. Prodr. 2. 384, in part. Chapman, 104.

Glycine Caribæa. Jacq. Icon. Rar. 1. 15, t. **146.**

R. galactioides. Endl.; Walp. Rep. 1. 790. Dietr. 4. 1209. Chapman, 105. Wood, Bot. & Fl. 96.

Pitcheria galactioides. Nutt. in Journ. Acad. Philad. 7. 93. Torr. & Gray, Fl. 1. 286. Eat. & Wr. 300.

Lespedeza cytisoides. Bertol. Bot. Misc. 9. 14, t. **6** (Bot. Zeit. 9. 903); fide Gray, Am. Journ. Sci. 2. 14. 115, & Maxim. Syn. Lesped. 383.

R. latifolia. Nutt.; Torr. & Gray, Fl. 1. 285. Walp. Rep. 1. 789. Dietr. 4. 1209. Gray, Hall's Pl. Texas, 7. Referred to *R. reticulata*, DC., by Griseb. in Fl. Brit. W. Ind. 190.

Phaseolus latifolius. Eat. & Wr. 353.

R. menispermoidea. DC. in Ann. Sci. Nat. 1. 4. 102; Mem. Legum. 364, t. **55**; Prodr. 2. 384. Torr. & Gray, Fl. 1. 284. Dietr. 4. 1209. Engelm. & Gray, Pl. Lindh. 6. Torrey, Mex. Bound. 50. Chapman, 105.

Phaseolus menispermoideus. Eat. & Wr. 353.

R. minima. DC. Prodr. 2. 385. Torr. & Gray, Fl. 1. 687. Engelm. & Gray, Pl. Lindh. 6. Gray, Pl. Lindh. 31; Hall's Pl. Texas, 7. Benth. in Mart. Fl. Bras. 15¹. 204, t. **54, fig. 2,** with syn. Griseb. Fl. Brit. W. Ind. 190. Chapman, 104. Wood, Bot. & Fl. 96.

Dolichos minimus. Linn. Spec. 726.

Glycine reflexa. Nutt. Genera, 2. 115. Elliott, 2. 236.

R. Caribæus. Nutt. in Am. Journ. Sci. 1. 5. 258. DC. Prodr. 2. 384, in part. Torr. & Gray, Fl. 1. 284. Dietr. 4. 1209.

Phaseolus Caribæus. Eat. & Wr. 353.

R. mollissima. Shuttleworth in herb.

Glycine mollissima. Elliott, 2. 235.

R. tomentosa, var (?) *mollissima.* Torr. & Gray, Fl. 1. 285. Lesqx. Fl. Ark. 37.

R. tomentosa, var. *erecta.* Chapman, 105, in part.

R. Texana. Torr. & Gray, Fl. 1. 687. Gray, Pl. Lindh. 171; Pl. Wright. 1. 44 & 2. 34; Hall's Pl. Texas, 7. Torrey, Mex. Bound. 50. Young, Fl. Texas, 235. Griseb. Pl. Lorentz. 78. Referred to *R. Senna*, Gill., by Benth. in Mart. Fl. Bras. 15¹. 205.

Var. **angustifolia.** Gray, Pl. Wright. 1. 44 & 2. 34. Torrey, Mex. Bound. 50.

R. tomentosa. Hook. & Arn. Comp. Bot. Mag. 1. 23. Torr. & Gray, Fl. 1. 284. Walp. Rep. 1. 789. Dietr. 4. 1209. Chapman, 105. Gray, Manual, 142.

Glycine tomentosa. Linn. Spec. 754. Hill, Veg. Syst. 21, **t. 6, fig. 2.** Lam. Dict. 2. 730. Willd. Spec. 3. 1061, excl. var.; Enum. 755. Michx. Fl. 2. 63. Persoon, 2. 300. Ait. f. Hort. Kew. 4. 297. Spreng. Syst. 3. 197.

Psoralea alnifolia & *P. alopecurina.* Bertol. Bot. Misc. 9. 10, **t. 4** (Bot. Zeit. 9. 902); fide Gray in Am. Journ. Sci. 2. 14. 115.

Var. **monophylla.** Torr. & Gray, Fl. 1. 284. Gray, Manual, 142.

Trifolium simplicifolium. Walter, 184.

Glycine tomentosa, var. *monophylla.* Michx. Fl. 2. 63.

Glycine reniformis. Pursh, 486. Poir. Suppl. 5. 693. Spreng. Syst. 3. 195.

Glycine monophylla. Nutt. Genera, 2. 115.

Arcyphyllum simplicifolium. Elliott, Journ. Acad. Philad. 1. 371 (Litt.-Ber. zu Linnæa, 1828, 164).

Glycine simplicifolia. Elliott, Sketch, 2. 234. Wood, Bot. & Fl. 96.

Rhynchosia reniformis. DC. Prodr. 2. 384. Don, Mill. 2. 344. Hook. Comp. Bot. Mag. 1. 23.

Phaseolus reniformis. Eat. & Wr. 353.

Var. **volubilis.** Torr. & Gray, Fl. 1. 285. Torrey, Marcy's Rep. 283. Chapman, 105. Gray, Manual, 142.

Glycine tomentosa, var. *volubilis.* Michx. Fl. 2. 63.

Glycine tomentosa. Pursh, 486, excl. var. Nutt. Genera, 2. 115. Elliott, 2. 234.

Arcyphyllum difformis. Elliott, Journ. Acad. Philad. 1. 371 (Litt.-Ber. zu Linnæa, 1828, 164).

Rhynchosia difformis. DC. Prodr. 2. 384. Don, Mill. 2. 344.

R. volubilis. Wood, Bot. & Fl. 96.

Var. **erecta.** Torr. & Gray, Fl. 1. 285 & 687. Chapman, 105, in part. Gray, Manual, 142.

Trifolium erectum. Walter, 184.

Glycine tomentosa, var. *erecta.* Michx. Fl. 2. 63. Pursh, 486.

Glycine erecta. Nutt. Genera, 2. 114. Elliott, 2. 235.

Arcyphyllum erectum. Elliott, Journ. Acad. Philad. 1. 372 (Litt.-Ber. zu Linnæa, 1828, 164).

Rhynchosia erecta. DC. Prodr. 2. 384. Don, Mill. 2. 344. Hook. Comp. Bot. Mag. 1. 23. Wood, Bot. & Fl. 96.

Glycine Caroliniana. Spreng. Syst. 3. 197.

ROBINIA hispida. Linn. Mant. 1. 101. DuRoi, Obs. Bot. 28. Walter, 186. Ait. f. Hort. Kew. 3. 53. Curtis, Bot. Mag. **t. 311.** Willd. Spec. 3. 1132; Enum. 709. Poir. Dict. 6. 223. Michx. Fl. 2. 65. Persoon, 2. 311. St. Hil. Pl. France, 3, **t. 320.** Pursh, 488. Elliott, 2. 243. Guimp. Otto & Hayne, **t. 66.** DC. Prodr. 2. 262. Spreng. Syst. 3. 247. Don, Mill. 2. 238. Spach, Hist. Veg. 1. 261. Torr.

& Gray, Fl. 1. 295. Eat. & Wr. 397. Loud. Arbor. 2. 627, t. **88** & fig. **307**. Dietr. 4. 1053. Curtis, Bot. N. Car. 49. Chapman, 94. Carrière, Rev. Hort. 1867, 309 & 431, fig. **38** (fruit). Gray, Am. Naturalist, 1. 494 & 674; Manual, 131.

R. rosea. **Marshall, Arbust. 134. Nouv. Duham. 2. 64, t. 18.**

R. montana. **Bartram, Trav. 335 & 342.**

Pseudacacia hispida. Moench, 145.

Var. **rosea.** Pursh, 488. DC. Prodr. 2. 262. Torr. & Gray, Fl. 1. 295. Chapman, 94.

Var. **Elliottii.** Chapman, 94.

R. hispida, var. *rosea.* Elliott, 2. 243.

R. rosea. Don, Mill. 2. 238. Spach, Hist. Veg. 1. 263.

Var. **nana.** Elliott, 2. 243. DC. l. c. Torr. & Gray, Fl. l. c. Chapman, 94.

R. nana. Spach, Hist. Veg. 1. 262.

Var. **macrophylla.** DC. Prodr. 2. 262.

R. macrophylla. Schrad.; Don, Mill. 2. 238.

R. Neo-Mexicana. Gray, Pl. Thurb. 314. Torrey, Pac. R. Rep. 4. 79; Mex. Bound. 53. Walp. Ann. 4. 491. Watson, King's Rep. 5. 419. Porter, Fl. Col. 23.

R. Pseudacacia. Linn. Spec. 722. Marshall, Arbust. 133. L'Her. Stirp. Nov. 158. Walter, 186. Ait. Hort. Kew. 3. 53. Willd. Spec. 3. 1131; Enum. 769. Michx. Fl. 2. 65. Nouv. Duham. 2. 60, t. **16**. Poir. Dict. 6. 222. Persoon, 2. 311. Michx. f. Arb. Amer. 3. 245, t. **1** (Sylva, 2. 1, t. **76**). Pursh, 487. Lam. Ill. t. **606**. James, Long's Exped. 3. 8. Elliott, 2. 242. Bigel. Fl. Bost. 2 ed. 277. DC. Prodr. 2. 261. Spreng. Syst. 3. 247. Torrey, Compend. 271; Ann. Lyc. N. Y. 2. 178; Fl. N. Y. 1. 165; Emory's Rep. 408. Hook. Fl. Bor.-Am. 1. 140. Audubon, Birds, t. **104**. Don, Mill. 2. 237. Beck, Bot. 82. Spach, Hist. Veg. 1. 258. Darling. Fl. Cestr. 410. Torr. & Gray, Fl. 1. 294. Eat. & Wr. 397. Loud. Arbor. 2. 609, t. **83–86**. Emerson, Mass. Trees, 460, & 2 ed. 2. 522, t. **46, 47**. Dietr. 4. 1053. Curtis, Bot. N. Car. 48. Chapman, 94. Lemaire, Ill. Hort. 12, t. **427**. Gray, Manual, 131. Verlot, Revue Hort. 1873, 152 & fig.

Pseudacacia odorata. Moench, 145.

R. viscosa. Vent. Hort. Cels, t. **4**. Willd. Spec. 3. 1131; Enum. 769. Michx. Fl. 2. 65. Nouv. Duham. 2. 64, t. **17**. Poir. Dict. 6. 222. Barton, Bot. Appx. 29, t. **21**. Persoon, 2. 311. Ait. f. Hort. Kew. 4. 323. Michx. f. Arbr. Amer. 3. 262, t. **2** (Sylva, 2. 15, t. **71**). Pursh, 488. Elliott, 2. 242. DC. Prodr. 2. 262. Guimp. Otto & Hayne, t. **65**. Spreng. Syst. 3. 247. Don, Mill. 2. 236. Spach, Hist. Veg. 1. 260. Torr. & Gray, Fl. 1. 295. Eat. & Wr. 397. Loud. Arbor. 2. 626, t. **87** & fig. **306**. Dietr. 4. 1053. Curtis, l. c. 49. Chapman, 94. Gray, Manual, 131.

R. glutinosa. Curtis, Bot. Mag. t. **560**.

SCHRANKIA angustata. Torr. & Gray, Fl. 1. 400. Gray, Am. Journ. Sci. 1. 42. 49 & Lond. Journ. Bot. 3. 242; Pl. Fendl. 38; Manual, 146; Hall's Pl. Texas, 8. Walp. Rep. 1. 884. Benth. in Hook. Journ. Bot. 4. 415; Rev. Mim. in Trans. Linn. Soc. 30. 442. Engelm. & Gray, Pl. Lindh. 35. Dietr. 4. 477. Engelm. in Wisliz. Rep. 3. Chapman, 116.

S. uncinata. Elliott, 2. 158, not Willd. DC. Prodr. 2. 443. Bertol. Bot. Misc. 16. 25; fide Gray, Am. Journ. Sci. 2. 24. 287.

Var. brachycarpa. Chapman, 116.

S. platycarpa. Gray, Pl. Lindh. 183; Pl. Wright. 1. 67; Hall's Pl. Texas, 8. Walp. Ann. 2. 451. Torr. & Gray, Pac. R. Rep. 2. 164. Wood, Bot. & Fl. 93.

Mimosa Rœmeriana. Scheele, Linnæa, 21. 456. Walp. Ann. 2. 451.

S. uncinata. Willd. Spec. 4. 1043. Ait. f. Hort. Kew. 5. 457. Pursh, 305. Nutt. Genera, 2. 81. James, Cat. 185. Spreng. Syst. 2. 208. Torrey, Ann. Lyc. N. Y. 2. 192; Nicol. Rep. 149; Emory's Rep. 139 & 408; Marcy's Rep. 285; Pac. R. Rep. 4. 82; Mex. Bound. 61. Don, Mill. 2. 397. Hook. Comp. Bot. Mag. 1. 24. Raf. New Flora, 1. 43. Torr. & Gray, Fl. 1. 400; Pac. R. Rep. 2. 126. Eat. & Wr. 416. Gray, Am. Journ. Sci. 1. 42. 49 & Lond. Journ. Bot. 3. 242; Pac. R. Rep. 12. 42. Manual, 146; Hall's Pl. Texas, 8. Benth. in Hook. Journ. Bot. 4. 415; Rev. Mim. 441. Dietr. 4. 477. Engelm. in Wisliz. Rep. 3; Pl. Upp. Miss. 190. Chapman, 116. Wood, Bot. & Fl. 82. Porter, Fl. Col. 33.

Mimosa Intsia. Walter, 252.

Mimosa horridula. Vent. Choix Pl. Cels, **t. 28.** Michx. Fl. 2. 254. Poir. Suppl. 1. 56. Kon. & Sims, Ann. Bot. 2. 364.

Leptoglottis Nuttallii. DC. Mem. Legum. 451. Torr. & Gray, Fl. 1. 695.

SESBANIA Cavanillesii. (The genus *Daubentonia* is referred to *Sesbania* by Benth. in Mart. Fl. Bras. 15[1]. 43, and by Benth. & Hook. Gen. Pl. 1. 502.)

Æschynomene longifolia. Cav. Icon. 4, **t. 315.**

Piscidia longifolia. Willd. Spec. 3. 920. Spreng. Syst. 2. 229.

Daubentonia longifolia. DC. Mem. Legum. 286; Prodr. 2. 267. Don, Mill. 2. 242. Torr. & Gray, Fl. 1. 293 & 687. Engelm. & Gray, Pl. Lindh. 6. Torrey, Mex. Bound. 51.

S. GRANDIFLORA. Poir. Dict. 7. 127. Benth. & Hook. Gen. Pl. 1. 502.

Agati grandiflora, Desv. Torr. & Gray, Fl. 1. 293. Eat. & Wr. 116.

S. macrocarpa. Muhl. Cat. 68. Nutt. Genera, 2. 112. Barton, Fl. N. Am. 1. 80, **t. 28.** Elliott, 2. 221. DC. Prodr. 2. 265. Don, Mill. 2. 241. Torr. & Gray, Fl. 1. 293 & 687. Eat. & Wr. 423. Dietr. 4. 1055. Gray, Pl. Lindh. 172; Pl. Thurb. 302. Torrey, Emory's Rep. 138; Mex. Bound. 51. Chapman, 97. Smith, Proc. Acad. Philad. 1867, 19. Wood, Bot. & Fl. 93.

Darwinia exaltata. Raf. Fl. Lud. 106. Poir. in Lam. Ill. 3. 676.

S. picta, var. Spreng. Syst. 4. 284.

S. (?) Thurberi.

Daubentonia (?) Thurberi. Gray, Pl. Thurb. 313. Walp. Ann. 4. 493. Torrey, Mex. Bound. 51.

S. vesicaria. Elliott, 2. 222. Eat. & Wr. 423. Benth. & Hook. Gen. Pl. 1. 502.

Robinia vesicaria. Jacq. Icon. Rar. 1, **t. 148.**

Phaca Floridana. Willd. Spec. 3. 1252. Persoon, 2. 331. Spreng. Syst. 3. 29[illegible]

Æschynomene platycarpa. Michx. Fl. 2. 75. Poir. Suppl. 4. 75.

Sesbania platycarpa. Persoon, 2. 316. Nutt. Genera, 2. 112.

Colutea floribunda. Poir. Suppl. 1. 562.

Dalbergia polyphylla. Poir. Suppl. 2. 446.

Sesbania disperma. Pursh, 485.

Glottidium Floridanum. Desv. Journ. Bot. 3. 119, **t. 1.** DC. Prodr. 2. 266. Don, Mill. 2. 242. Hook. Comp. Bot. Mag. 1. 22. Torr. & Gray, Fl. 1. 294. Dietr. 4. 1054. Torrey, Mex. Bound. 51. Chapman, 97. Smith, Proc. Acad. Philad. 1867, 19. Gray, Hall's Pl. Texas, 7.

SOPHORA affinis. Torr. & Gray, Fl. 1. 390. Leavenworth, Am. Journ. Sci. 1. 49. 130. Gray, Pl. Lindh. 178; Hall's Pl. Texas, 7. Scheele, Roem. Texas, 428.

Styphnolobium affine. Walp. Rep. 1. 807.

S. Arizonica. Watson, Proc. Am. Acad. 11. 135. Brew. & Wats. Bot. Calif. 1. 114.

S. speciosa. Torrey, Pac. R. Rep. 4. 82.

S. secundiflora. Lag. in DC. Cat. Hort. Monsp. 148. DC. Prodr. 2. 96. Don, Mill. 2. 110. Gray, Pl. Wr. 1. 54. Revue Hort. 4. 3. 201, t. **11.** Benth. & Hook. Gen. Pl. 1. 555.

Broussonetia secundiflora. Orteg. Dec. 5. 61, t. **7.**

Virgilia secundiflora. Cav. Icon. t. **401.**

Agastianis secundiflora. Raf. New Sylv. 3. 86.

Dermatophyllum speciosum. Scheele, Linnæa, 21. 458.

S. speciosa. Benth. in Gray, Pl. Lindh. 178. Gray, Pl. Fendl. 38; Pl. Wright. 1. 54; Hall's Pl. Texas, 7. Walp. Ann. 2. 439. Torrey, Mex. Bound. 58. Young, Fl. Texas, 242.

S. sericea. Nutt. Genera, 1. 280. James, Cat. 181. DC. Prodr. 2. 96. Spreng. Syst. 2. 346. Torrey, Ann. Lyc. N. Y. 2. 174; Mex. Bound. 58. Don, Mill. 2. 110. Torr. & Gray, Fl. 1. 390; Pac. R. Rep. 2. 163. Dietr. 2. 1498. Eat. & Wr. 438. Nees, Pl. Neuwied. 6. Hook. in Lond. Journ. Bot. 6. 216. Gray, Pl. Fendl. 38; Pl. Wright. 1. 54 & 2. 49; Pl. Thurb. 299; Pac. R. Rep. 12. 42; Ives's Rep. 11; Am. Journ. Sci. 2. 33. 411; Proc. Acad. Philad. 1863, 61. Engelm. in Wisliz. Rep. 3; Pl. Upp. Miss. 190. Porter, Hayd. Rep. 1870, 475; Fl. Col. 31. Rothrock, Pl. Wheeler, 37.

Astragalus carnosus. Pursh, 740, excl. fruit. Poir. Suppl. 5. 564.

Patrinia sericea. Raf. in Journ. Phys. 1819, 97.

S. stenophylla. Gray, Ives's Rep. 10.

S. tomentosa. Linn. Spec. 373. See syn. in Benth. Mart. Fl. Bras. 15[1]. 314; Griseb. Fl. Brit. W. Ind. 203. — Torr. & Gray, Fl. 1. 389. Torrey, Mex. Bound. 58. Chapman, 113. Wood, Bot. & Fl. 100.

Zanthyrsis paniculata. Raf. New Sylv. 3. 84.

STYLOSANTHES elatior. Swartz, Act. Holm. 1789, 283, t. **11, fig. 2.** Willd. Spec. 3. 1167. Poir. Dict. 7. 481. Persoon, 2. 317. Nutt. Genera, 2. 106. Elliott, 2. 203. DC. Prodr. 2. 318. Spreng. Syst. 3. 310. Torrey, Compend. 266; Fl. N. Y. 1. 174, t. **27.** Don, Mill. 2. 281. Beck, Bot. 83. Hook. Comp. Bot. Mag. 1. 22. Torr. & Gray, Fl. 1. 354; Pac. R. Rep. 2. 163. Eat. & Wr. 446. Dietr. 4. 1130. Bertol. Bot. Misc. 9. 12, t. **5, fig. 2.** Chapman, 100. Gray, Manual, 138; Hall's Pl. Texas, 7.

Trifolium biflorum. Linn. Spec. 773. Hill, Veg. Syst. 22, t. **34, fig. 5.**

Arachis aprica. Walter, 182.

S. hispida. Michx. Fl. 275, not Richard. Pursh, 480.

TEPHROSIA ambigua. Chapman, 96. Wood, Bot. & Fl. 95.

Galega ambigua. M. A. Curtis, Journ. Bost. Nat. Hist. Soc. 1. 121. Walp. Rep. 1. 672. Dietr. 4. 1043.

T. hispidula, var. *β.* Torr. & Gray, Fl. 1. 297.

T. angustissima. Shuttleworth; Chapman, 96.

T. chrysophylla. Pursh, 489. Elliott, 2. 246. Torr. & Gray, Fl. 1. 297. Eat. & Wr. 449. Dietr. 4. 1045. Chapman, 95. Wood, Bot. & Fl. 95.

T. prostrata. Nutt. Genera, 2. 120. DC. Prodr. 2. 250. Spreng. Syst. 3. 234. Don, Mill. 2. 229.

T. hispidula. Persoon, 2. 329. Pursh, 489. Nutt. Genera, 2. 119. Elliott, 2. 245. DC. Prodr. 2. 250. Don, Mill. 2. 229. Hook. Comp. Bot. Mag. 1. 22. Torr. & Gray, Fl. 1. 296. Eat. & Wr. 449. Walp. Rep. 1. 677. Dietr. 4. 1045. Chapman, 95. Gray, Manual, 131.

Galega hispidula. Michx. Fl. 2. 68. Poir. Suppl. 5. 687. Curtis, l. c. 122.

T. gracilis. Nutt. Genera, 2. 119. DC. Prodr. 2. 250. Spreng. Syst. 3. 234. Don, Mill. 2. 229. Wood, Bot. & Fl. 95.

? *T. elegans.* Nutt. in Journ. Acad. Philad. 7. 165. Torr. & Gray, Fl. 1. 297. Eat. & Wr. 449.

T. leiocarpa. Gray, Pl. Wright. 2. 36. Walp. Ann. 4. 489.

T. leucantha. HBK. Nov. Gen. 6. 460, t. **577.** DC. Prodr. 2. 252. Spreng. Syst. 4^2. 275. Don, Mill. 2. 331. Dietr. 4. 1049. Gray, Pl. Wright. 2. 36. Seem. Bot. Herald, 280. Torrey, Mex. Bound. 51.

T. Lindheimeri. Gray, Pl. Lindh. 172; Pl. Wright. 2. 36. Walp. Ann. 2. 306. Torrey, Mex. Bound. 51.

T. onobrychoides. Nutt. in Journ. Acad. Philad. 7. 104. Torr. & Gray, Fl. 1. 296. Eat. & Wr. 449. Walp. Rep. 1. 677. Engelm. & Gray, Pl. Lindh. 6 & 33. Dietr. 4. 1044. Gray, Hall's Pl. Texas, 7.

T. angustifolia & *T. multiflora.* Featherman, Bot. Rep. Louisiana Univ. 1870, 73; fide Gray, Am. Journ. Sci. 3. 2. 307.

T. spicata. Torr. & Gray, Fl. 1. 296. Dietr. 4. 1044. Lesqx. Fl. Ark. 356. Chapman, 95. Gray, Manual, 131.

Galega spicata. Walter, 188.

Galega villosa. Michx. Fl. 2. 67. Poir. Suppl. 5. 687.

T. villosa. Persoon, 2. 329.

? *Crafordia bracteata.* Raf. Specch. Sci. 1. 156. DC. Prodr. 2. 252. Don, Mill. 2. 467. Beck, Bot. 93. Torr. & Gray, Fl. 1. 405.

T. paucifolia. Nutt. Genera, 2. 119. Elliott, 2. 246. DC. Prodr. 2. 250. Spreng. Syst. 3. 234. Don, Mill. 2. 229. Hook. Comp. Bot. Mag. 1. 22. Eat. & Wr. 449.

? *T. hispida.* DC. Prodr. 2. 250. Don, Mill. 2. 229.

Galega paucifolia. Curtis, Journ. Bost. Nat. Hist. Soc. 1. 122.

T. mollissima. Bertol. Bot. Misc. 9. 10, t. **3, fig. 2** (Bot. Zeit. 9. 902); fide Gray, Am. Journ. Sci. 2. 14. 115.

T. tenella. Gray, Pl. Wright. 2. 36. Walp. Ann. 4. 489. Torrey, Mex. Bound. 51. — Referred to *T. leptostachya,* DC., by Benth. in Mart. Fl. Bras. 15^1. 48.

T. Virginiana. Persoon, 2. 329. Pursh, 489. Nutt. Genera, 2. 119. Elliott, 2. 245. Bigel. Fl. Bost. 2 ed. 278. DC. Prodr. 2. 250. Spreng. Syst. 3. 234. Torrey, Compend. 271; Fl. N. Y. 1. 167; Marcy's Rep. 283. Hook. Fl. Bor.-Am. 1. 139. Comp. Bot. Mag. 1. 22. Don, Mill. 2. 229. Beck, Bot. 81. Spach, Hist. Veg. 1. 251. Torr. & Gray, Fl. 1. 295; Pac. R. Rep. 2. 162. Eat. & Wr. 448. Walp. Rep. 1. 677. Engelm. & Gray, Pl. Lindh. 6. Dietr. 4. 1044. Parry, Pl. Minn. 61. Seem. Bot. Herald, 280. Chapman, 95. Gray, Manual, 31; Hall's Pl. Texas, 7.

Galega Virginiana. Linn. Spec. 2 ed. 1062. Hill, Veg. Syst. 21, t. **55, fig.** Lam. Dict. 2. 597. Walter, 187. Willd. Spec. 3. 1244. Michx. Fl. 2. 67. Ait. Hort. Kew. 4. 355.

Var. **holosericea.** Torr. & Gray, Fl. 1. 296.

T. holosericea. Nutt. in Journ. Acad. Philad. 7. 105.

THERMOPSIS Californica. Watson, Proc. Am. Acad. 11. 126. Brew. Wats. Bot. Calif. 1. 113.

T. macrophylla. Torrey, Pac. R. Rep. 4. 81; Bot. Wilkes, 282. Newberry, Pac. R. Rep. 6. 71 ? Boland. Cat. 10.

T. fabacea. Torrey, Mex. Bound. 58.

T. Caroliniana. M. A. Curtis, Am. Journ. Sci. 1. 44. 80. Gray, Chloris Bor. Am. 42, t. 7. Walp. Ann. 3. 845. Chapman, 113. Wood, Bot. & Fl. 85.

T. fraxinifolia. Curtis, Am. Journ. Sci. 1. 44. 81. Gray, Chloris Bor.-Am. 45, t. 8. Walp. Ann. 3. 845. Chapman, 113. Wood, Bot. & Fl. 85.

Baptisia mollis. Nutt. Genera, 1. 281, not DC. Torr. & Gray, Fl. 1. 605. Dietr. 2. 1500. Eat. & Wr. 154.

Baptisia fraxinifolia. Nutt. under *B. mollis*, Torr. & Gray, Fl. 1. 387.

T. macrophylla. Hook. & Arn. Bot. Beechey, 329. Torr. & Gray, Fl. 1. 388. Walp. Rep. 1. 563. Gray, Mem. Am. Acad. 6. 385. Watson, Proc. Am. Acad. 11. 126. Brew. & Wats. Bot. Calif. 1. 113.

T. mollis. Curtis; Gray, Chlor. Bor.-Am. 47, t. 9. Chapman, 113. Wood, Bot. & Fl. 85.

Podalyria mollis. Michx. Fl. 1. 264. Persoon, 1. 453. Pursh, 308. Poir. Suppl. 4. 442.

Baptisia mollis. DC. Prodr. 2. 100. Spreng. Syst. 4². 171. Don, Mill. 2. 114. Torr. & Gray, Fl. 1. 387. Curtis, Am. Journ. Sci. 1. 44. 81.

T. montana. Nutt.; Torr. & Gray, Fl. 1. 388. Walp. Rep. 1. 562. Torrey, Frem. Rep. 89 & 314; Pac. R. Rep. 4. 81. Hook. in Lond. Journ. Bot. 6. 216. Gray, Pl. Fendl. 38. Watson, Proc. Am. Acad. 11. 126. Brew. & Wats. Bot. Calif. 1. 126.

T. fabacea. Hook. Fl. Bor.-Am. 1. 128, not DC.; Bot. Mag. t. **3611**; Lond. Journ. Bot. 6. 216. Lindl. Bot. Reg. 15, t. **1272**. Lodd. Bot. Cab. t. **1856**. Torr. & Gray, Fl. 1. 388. Gray, Pl. Fendl. 38; Ives's Rep. 11; Mem. Am. Acad. 6. 385. Coulter, Hayd. Rep. 1872, 764. Torrey, Bot. Wilkes, 282.

T. macrophylla, var. β. Torr. & Gray, Fl. 1. 388.

T. fabacea, var *montana*. Gray, Proc. Acad. Philad. 1863, 60; Proc. Am. Acad. 8. 379. Watson, King's Rep. 5. 53; Pl. Wheeler, 7. Porter, Hayd. Rep. 1870, 475; 1871, 481; Fl. Col. 19. Rothr. Pl. Wheeler, 37.

T. rhombifolia. Richard. in Frankl. Journ. 13. DC. Prodr. 2. 99. Torrey, Ann. Lyc. N. Y. 2. 174; Frem. Rep. 314. Hook. Fl. Bor.-Am. 1. 128, t. **47**; Lond. Journ. Bot. 6. 216. Don, Mill. 2. 113. Torr. & Gray, Fl. 1. 388. Dietr. 2. 1500. Nees, Pl. Neuwied. 6. Engelm. Pl. Upp. Miss. 190. Gray, Pac. R. Rep. 12. 42; Mem. Am. Acad. 6. 385; Am. Journ. Sci. 2. 33. 411; Proc. Acad. Philad. 1863, 60. Porter, Hayd. Rep. 1870, 475; Fl. Col. 19. Brew. & Wats. Bot. Calif. 1. 114.

Cytisus rhombifolius. Nutt. in Fras. Cat. 1813. Pursh, 741. Poir. Suppl. 5. 649. Bradbury, Cat. 338.

Thermia rhombifolia. Nutt. Genera, 1. 282. James, Cat. 181. Spreng. Syst. 2. 348. Eat. & Wr. 450.

TRIFOLIUM AGRARIUM, Linn. Michx. Fl. 2. 59. Pursh, 478. Torrey, Compend. 200; Fl. N. Y. 1. 170. Beck, Bot. 33. Darling. Fl. Cestr. 408. Torr. & Gray, Fl. 1. 317. Eat. & Wr. 456. Gray, Manual, 127.

T. altissimum. Dougl.; Hook. Fl. Bor.-Am. 1. 130, t. **48**; Lond. Journ. Bot. 6. 208. Don, Mill. 2. 192. Torr. & Gray, Fl. 1. 312. Eat. & Wr. 457. Walp. Rep. 1. 642. Dietr. 4. 1003. Torrey, Bot. Wilkes, 270. Watson, Proc. Am. Acad. 11. 128. Brew. & Wats. Bot. Calif. 1. 128.

T. amphianthum. Torr. & Gray, Fl. 1. 316. Eat. & Wr. 458. Walp. Rep. 1. 644. Dietr. 4. 1004. Gray, Pl. Lindh. 176; Hall's Pl. Texas, 7. Watson, Proc. Am. Acad. 11. 129.

T. Remerianum. Scheele, Linnæa, 21. 460. Walp. Ann. 2. 351.

T. amplectens. Torr. & Gray, Fl. 1. 319. Hook. & Arn. Bot. Beechey, 330, t. 78. Eat. & Wr. 458. Walp. Rep. 1. 645. Dietr. 4. 1005. Torrey, Pac. R. Rep. 4. 78; Mex. Bound. 54. Gray, Proc. Am. Acad. 6. 523. Boland. Cat. 9. Watson, Proc. Am. Acad 11 114 & 131. Brew. & Wats. Bot. Calif. 1. 132.

T. diversifolium. Nutt. Pl. Gambel. in Proc. Acad. Philad. 4. 9 & Journ. A Philad. 1. 152.

T. Andersoni. Gray, Proc. Am. Acad. 6. 522. Anderson, Cat. Pl. Nev Watson, King's Rep. 5. 60; Proc. Am. Acad. 11. 127. Brew. & Wats. Bot. (1. 127.

T. andinum. Nutt.; Torr. & Gray, Fl. 1. 314. Eat. & Wr. 458. Walp. 1. 643. Dietr. 4. 1003. Hook. in Lond. Journ. Bot. 6. 209. Watson, King's 5. 60, **t. 8**; Proc. Am. Acad. 11. 130.

T. ARVENSE, Linn. Walter, 183. Michx. Fl. 2. 59. Pursh, 478. Bigel. Fl. 168. Elliott, 2. 203. Torrey, Compend. 265; Fl. N. Y. 1. 168. Hook. Fl. Bor 1. 131. Beck, Bot. 79. Darling. Fl. Cestr. 406. Torr. & Gray, Fl. 1. 313. E Wr. 456. Chapman, 91. Gray, Manual, 127.

T. barbigerum. Torrey, Pac. R. Rep. 4. 79. Boland. Cat. 9. Watson, Am. Acad. 11. 131. Brew. & Wats. Bot Calif. 1. 131.

Var. **Andrewsii.** Gray, Proc. Am. Acad. 7. 335. Brew. & Wats. l. c.

T. Beckwithii. Brewer; Watson, Proc. Am. Acad. 11. 128. Brew. & Wats. Calif. 1. 128.

T. altissimum. Torr & Gray, Pac. R. Rep. 2. 120.

T. Bejariense. Moric. Pl. Nouv. 2, **t. 2** (Mem. Genéve, 6. 530). Walp. 1. 646. Dietr. 4. 1006. Gray, Pl. Wright. 1. 50; Hall's Pl. Texas, 7. To Mex. Bound. 54. Watson, Proc. Am. Acad. 11. 130.

T. macrocalyx. Hook. Icon. **t. 285.** Torr. & Gray, Fl. 1. 691. Dietr. 4. Young, Fl. Texas, 217.

T. bifidum. Gray, Proc. Am. Acad. 6. 522; Proc. Calif. Acad. 3. 102. Bo Cat. 9. Watson, Proc. Am. Acad. 11. 129. Brew. & Wats. Bot. Calif. 1. 129.

T. Bolanderi. Gray, Proc. Am. Acad. 7. 335. Watson, same, 11. 128. & Wats. Bot. Calif. 1. 128.

T. Brandegei. Watson, Proc. Am. Acad. 11. 130, & in Brandegee, Fl. S Col. 234.

T. Breweri. Watson, Proc. Am. Acad. 11. 131. Brew. & Wats. Bot. 1. 219.

T. Carolinianum. Michx. Fl. 2. 58. Persoon, 2. 348. Poir. Dict. 8. 2. I 477. Elliott, 2. 200. Seringe, DC. Prodr. 2. 201. Spreng. Syst. 3. 211. Mill. 2. 190. Torr. & Gray, Fl. 1. 316. Eat. & Wr. 458. Dietr. 4. 1004. (man, 91. Smith, Proc. Acad. Philad. 1867, 18. Gray, Manual, 127; Hal Texas, 7. Wood. Bot. & Fl. 91. Watson, Proc. Am. Acad. 11. 129.

? *T. comosum.* Linn. Spec. 767. Willd. Spec. 3. 1360. Persoon, 2. 349. Hort. Kew. 4. 382. Seringe, DC. Prodr. 2. 206. Don, Mill. 2. 194.

? *T. repens.* Walter, 183.

? *T. obcordatum.* Desv. Journ. Bot. 3. 76. Poir. Suppl. 5. 336.

T. umbellatum. Seringe, DC. Prodr. 2. 199. Don, Mill. 2. 188. Hook. (Bot. Mag. 1. 22.

T. oxypetalum. Fisch. & Mey. Ind. Sem. h. Petrop. 2. 26 (Litt.-Ber. zu Li 1837, 122; Ann. Sci. Nat. 2. 5. 182).

T. ciliatum. Nutt. Pl. Gambel. in Proc. Acad. Philad. 4. 8, & Journ. Philad. 1. 152, **t. 23.** Boland. Cat. 9. Watson, Proc. Am. Acad. 11. 129. & Wats. Bot. Calif. 1. 129.

T. ciliolatum. Benth. Pl. Hartw. 304. Walp. Ann. 2. 351. Torrey, P Rep. 4. 78. Gray, Proc. Am. Acad. 8. 379.

T. cyathiferum. Lindl. Bot. Reg. under t. 1070. Hook. Fl. Bor.-Am. 1. 133, t. 50; Lond. Journ. Bot. 6. 209. Don, Mill. 2. 185. Torr. & Gray, Fl. 1. 320. Eat. & Wr. 457. Walp. Rep. 1. 645. Dietr. 4. 1005. Anderson, Cat. Pl. Nev. 119. Watson, King's Rep. 5. 62; Proc. Am. Acad. 11. 131. Gray, Proc. Am. Acad. 8. 379. Torrey, Bot. Wilkes, 272. Brew. & Wats. Bot. Calif. 1. 131.

T. dasyphyllum. Torr. & Gray, Fl. 1. 315. Eat. & Wr. 458. Walp. Rep. 1. 643. Dietr. 4. 1003. Gray, Am. Journ. Sci. 2. 33. 409; Proc. Acad. Philad. 1863, 59. Watson, King's Rep. 5. 60; Proc. Am. Acad. 11. 130. Porter, Fl. Col. 21. Rothr. Pl. Wheeler, 36.

T. depauperatum. Desv. Journ. Bot. 4. 69, t. **32.** Poir. Suppl. 5. 335. Seringe, DC. Prodr. 2. 203. Spreng. Syst. 3. 218. Gay, Fl. Chil. 2. 74. Gray, Proc. Am. Acad. 6. 523. Watson, same, 11. 131. Brew. & Wats. Bot. Calif. 1. 132.

T. stenophyllum. Nutt. Pl. Gambel. ll. cc. 4. 8, & 1. 151.

T. eriocephalum. Nutt.; Torr. & Gray, Fl. 1. 313 & 690. Eat. & Wr. 457. Walp. Rep. 1. 642. Hook. in Lond. Journ. Bot. 6. 208. Boland. Cat. 9. Gray, Proc. Am. Acad. 8. 379. Watson, same, 11. 128. Brandegee, Fl. S. W. Col. 234. Brew. & Wats. Bot. Calif. 1. 127.

T. fucatum. Lindl. Bot. Reg. 22, t. **1883.** Hook. & Arn. Bot. Beechey, 332. Torr. & Gray, Fl. 1. 319 & 692. Eat. & Wr. 458. Walp. Rep. 1. 645. Dietr. 4. 1005. Benth. Pl. Hartw. 304. Torrey, Pac. R. Rep. 4. 16 & 78; Mex. Bound. 54. Boland. Cat. 9. Watson, Proc. Am. Acad. 11. 131. Brew. & Wats. Bot. Calif. 1. 131.

T. physopetalum. Fisch. & Mey. Ind. Sem. h. Petrop. 3. 47 (Litt.-Ber. zu Linnæa, 1838, 107).

T. Gambelii. Nutt. Pl. Gambel. ll. cc.

T. gracilentum. Torr. & Gray, Fl. 1. 316. Hook. & Arn. Bot. Beechey, 330. Eat. & Wr. 458. Walp. Rep. 1. 643. Dietr. 4. 1004. Torrey, Pac. R. Rep. 4. 78. Boland. Cat. 9. Gray, Proc. Am. Acad. 8. 379. Watson, same, 11. 129. Brew. & Wats. Bot. Calif. 1. 129.

T. denudatum. Nutt. Pl. Gambel. in Proc. Acad. Philad. 4. 9, & Journ. Acad. Philad. 1. 152, t. **24.**

T. gymnocarpon. Nutt.; Torr. & Gray, Fl. 1. 320. Eat. & Wr. 457. Walp. Rep. 1. 646. Dietr. 4. 1006. Watson, King's Rep. 5. 62, t. **8**; Proc. Am. Acad. 11. 129.

T. subcaulescens. Gray, Ives's Rep. 10. Watson, King's Rep. 5. 59, in part.

T. involucratum. Willd. Spec. 3. 1372. Poir. Dict. 8. 18. HBK. Nov. Gen. 6. 302. Kunth, Pl. Legum. 186, t. **53.** DC. Prodr. 2. 204. Don, Mill. 2. 186. Torr. & Gray, Fl. 1. 692. Benth. Pl. Hartw. 10. Eat. & Wr. 457. Dietr. 4. 1004. Gray, Pl. Fendl. 33; Pl. Wright. 2. 41. Torrey, Sitgr. Rep. 158; Pac. R. Rep. 4. 78; Mex. Bound. 54. Porter, Fl. Col. 21. Rothr. Pl. Wheeler, 36. Watson, Proc. Am. Acad. 11. 130. Brew. & Wats. Bot. Calif. 1. 130.

T. Wormskioldii. Lehm. Ind. Sem. h. Hamb. 1825, 17; Pug. Pl. Nov. 1. 30; Act. Acad. Leop. 14. 823, t. **45.** Spreng. Syst. 3. 209. Torr. & Gray, Fl. 1. 692. Don, Mill. 2. 185. Walp. Rep. 1. 645. Dietr. 4. 1005.

T. Willdenovii. Spreng. Syst. 3. 208.

T. fimbriatum. Lindl. Bot. Reg. 13, t. **1070.** Lodd. Bot. Cab. t. **1421.** Hook. Fl. Bor.-Am. 1. 133. Don, Mill. 2. 185. Vogel, Linnæa, 10. 590. Torr. & Gray, Fl. 1. 317 & 691. Hook. & Arn. Bot. Beechey, 137, & 331 in part. Eat. & Wr. 457. Walp. Rep. 1. 644. Dietr. 4. 1004. Durand, Pl. Pratten. 86. Newberry, Pac. R. Rep. 6. 70. Cooper, same, 12. 58. Torrey, Mex. Bound. 54. Boland. Cat. 9.

Anderson, Cat. Pl. Nev. 119. Watson, King's Rep. 5. 61. Gray, Proc. Am. Ac[illegible] 8. 379, in part.

T. spinulosum. Dougl.; Hook. Fl. Bor.-Am. 1. 133. Don, Mill. 2. 469. Tor[illegible]. Gray, Fl. 1. 318. Eat. & Wr. 457. Walp. Rep. 1. 644. Dietr. 4. 1004. Tor[illegible]ey, Mex. Bound. 54; Bot. Wilkes, 272. Boland. Cat. 9.

Var. **heterodon.** Watson, Proc. Am. Acad. 11. 130. Brew. & Wats. Bot. C[illegible] *lif.* 1. 130.

T. heterodon. Torr. & Gray, Fl. 1. 318. Walp. Rep. 1. 644. Dietr. 4. 1[illegible]04. Torrey, Pac. R. Rep. 4. 78; Mex. Bound. 54. Boland. Cat. 9.

T. fimbriatum, var. δ. Hook. & Arn. Bot. Beechey, 331.

T. fimbriatum. Benth. Pl. Hartw. 304.

T. Kingii. Watson, King's Rep. 5. 59; Proc. Am. Acad. 11. 128. Parry, *Am.* Naturalist, 9. 269. Brew. & Wats. Bot. Calif. 1. 128.

T. Haydeni. Porter, Hayd. Rep. 1871, 480. Coulter, same, 1872, 764.

T. Lemmoni. Watson, Proc. Am. Acad. 11. 127. Brew. & Wats. Bot. Calif. 1. 127.

T. longipes. Nutt.; Torr. & Gray, Fl. 1. 314 & 691. Eat. & Wr. 458. Walp. Rep. 1. 643. Dietr. 4. 1003. Hook. in Lond. Journ. Bot. 6. 209. Newberry, Pac. R. Rep. 6. 70. Gray, Proc. Acad. Philad. 1863, 59. Anderson, Cat. Pl. Nev. 119. Watson, King's Rep. 5. 59; Proc. Am. Acad. 11. 128. Porter, Hayd. Rep. 1871, 480; Fl. Col. 20. Coulter, Hayd. Rep. 1872, 763. Torrey, Bot. Wilkes, 271. Brew. & Wats. Bot. Calif. 1. 128.

Var. (?) **latifolium.** Hook. in Lond. Journ. Bot. 6. 209. Watson, Proc. Am. Acad. 11. 128. Brew. & Wats. l. c.

T. longipes, var. *pygmæum.* Gray, Ives's Rep. 9.

Var. (?) **brachypus.**

T. subcaulescens. Watson, King's Rep. 5. 59, in part.

T. eriocephalum. Parry, Am. Naturalist, 9. 269, in part.

T. Macræi. Hook. & Arn. Bot. Misc. 3. 179; Bot. Beechey, 330. Torr. & Gray, Fl. 1. 690. Walp. Rep. 1. 646. Gay, Fl. Chil. 2. 73. Torrey, Pac. R. Rep. 4. 78; Mex. Bound. 54. Boland. Cat. 9. Gray, Proc. Am. Acad. 8. 379. Watson, Proc. Am. Acad. 11. 129. Brew. & Wats. Bot. Calif. 1. 129.

T. albopurpureum. Torr. & Gray, Fl. 1. 313. Eat. & Wr. 458. Walp. Rep. 1. 643. Dietr. 4. 996. Benth. Pl. Hartw. 304. Newberry, Pac. R. Rep. 6. 70.

Var. **dichotomum.** Brewer; Watson, l. c. Brew. & Wats. l. c.

T. dichotomum. Hook. & Arn. Bot. Beechey, 330. Torr. & Gray, Fl. 1. 690. Walp. Rep. 1. 643. Dietr. 4. 1003. Torrey, Pac. R. Rep. 4. 78. Boland. Cat. 9.

T. MEDIUM, Linn. Torr. & Gray, Fl. 1. 314. Bigel. Fl. Bost. 3 ed. 289. Eat. & Wr. 458. Hook. f. Arct. Pl. 289. Gray, Manual, 127.

T. Pennsylvanicum. Willd. Enum. 793. Pursh, 478. Poir. Suppl. 5. 336. Seringe, DC. Prodr. 2. 196. Torrey, Compend. 265. Hook. Fl. Bor.-Am. 1. 131. Don, Mill. 2. 185. Beck, Bot. 79. Torr. & Gray, Fl. 1. 691.

T. megacephalum. Nutt. Genera, 2. 105. Seringe, DC. Prodr. 2. 204. Hook. Fl. Bor.-Am. 1. 132. Don, Mill. 2. 192. Torr. & Gray, Fl. 1. 315. Dietr. 4. 1003. Torrey, Bot. Wilkes, 271. Watson, Pl. Wheeler, 7; Proc. Am. Acad. 11. 127. Brew. & Wats. Bot. Calif. 1. 131.

Lupinaster macrocephalus. Pursh, 479, t. 23. Eat. & Wr. 306.

T. macrocephalum. Poir. Suppl. 5. 336.

Pentaphyllum macrocephalum. Spreng. Syst. 3. 286.

microcephalum. Pursh, 478. Poir. Suppl. 5. 336. Seringe, DC. Prodr. 207. Spreng. Syst. 3. 216. Hook. Fl. Bor.-Am. 1. 132, excl. var.; Lond. Journ. ot. 6. 209. Don, Mill. 2. 186. Torr. & Gray, Fl. 1. 317. Hook. & Arn. Bot. eechey, 330. Eat. & Wr. 458. Dietr. 4. 1004. Torrey, Pac. R. Rep. 4. 78; ex. Bound. 54; Bot. Wilkes, 271. Cooper, Pac. R. Rep. 12. 58. Gray, Proc. m. Acad. 6. 524 & 8. 379. Boland. Cat. 9. Watson, King's Rep. 5. 61; Proc. Am. cad. 11. 114 & 131. Brew. & Wats. Bot. Calif. 1. 131.

T. microdon. Hook. & Arn. Bot. Misc. 3. 180; Bot. Beechey, 330, **t. 79.** Torr. & Gray, Fl. 1. 691. Walp. Rep. 1. 644. Gay, Fl. Chil. 2. 76. Dietr. 4. 1005. Torrey, Pac. R. Rep. 4. 78. Boland. Cat. 9. Gray, Proc. Am. Acad. 8. 379. Watson, same, 11. 131. Brew. & Wats. Bot. Calif. 1. 131.

T. monanthum. Gray, Proc. Am. Acad. 6. 523. Watson, Pl. Wheeler, 7; Proc. Am. Acad. 11. 131. Brew. & Wats. Bot. Calif. 1. 131.

T. pauciflorum, var. (?) *parvum.* Kellogg, Proc. Calif. Acad. 5. 54.

T. nanum. Torrey, Ann. Lyc. N. Y. 1. 35, **t. 3.** Torr. & Gray, Fl. 1. 314. Eat. & Wr. 457. Walp. Rep. 1. 643. Dietr. 4. 1003. Gray, Am. Journ. Sci. 2. 33. 409. Proc. Acad. Philad. 1863, 59. Watson, King's Rep. 5. 59; Proc. Am. Acad. 11. 128. Porter, Fl. Col. 21. Rothr. Pl. Wheeler, 36.

T. Palmeri. Watson, Proc. Am. Acad. 11. 114 & 132. Brew. & Wats. Bot. Calif. 1. 129. (Guadalupe Is.)

T. Parryi. Gray, Am. Journ. Sci. 2. 33. 409 (Bull. Soc. Bot. France, 9. 679); roc. Acad. Philad. 1863, 59. Walp. Ann. 7. 698. Watson, King's Rep. 5. 61; roc. Am. Acad. 11. 130. Porter, Hayd. Rep. 1870, 474; Fl. Col. 21. Coulter, ayd. Rep. 1872, 763. Rothr. Pl. Wheeler, 36.

pauciflorum. Nutt.; Torr. & Gray, Fl. 1. 319. Eat. & Wr. 457. Walp. Rep. 645. Gray, Proc. Am. Acad. 8. 379. Torrey, Bot. Wilkes, 272. Watson, Proc. n. Acad. 11. 130. Brew. & Wats. Bot. Calif. 1. 130.

T. microcephalum, var. *glabrum.* Hook. Fl. Bor.-Am. 1. 132.

T. variegatum. Nutt.; Torr. & Gray, Fl. 1. 317. Eat. & Wr. 457. Walp. Rep. 644. Dietr. 4. 1004. Newberry, Pac. R. Rep. 6. 70. Torrey, Mex. Bound. 54. erson, Cat. Pl. Nev. 119. Boland. Cat. 9. Watson, King's Rep. 5. 61. Coul- Hayd. Rep. 1872, 764.

T. diganthum. Steud. Nomenc. 2. 707. Dietr. 4. 1005.

plumosum. Dougl.; Hook. Fl. Bor.-Am. 1. 130, **t. 49.** Don, Mill. 2. 192. T. & Gray, Fl. 1. 313. Eat. & Wr. 457. Walp. Rep. 1. 642. Dietr. 4. 996. Tor- Bot. Wilkes, 271. Watson, Proc. Am. Acad. 11. 128. Brew. & Wats. Bot. if. 1. 127.

PRATENSE, Linn. Pursh, 478. Bigel. Fl. Bost. 271. Elliott, 2. 201. Torrey, npend. 265; Fl. N. Y. 1. 168. Hook. Fl. Bor.-Am. 1. 131. Beck, Bot. 79. Dar- , Fl. Cestr. 406. Torr. & Gray, Fl. 1. 313. Engelm. Pl. Upp. Miss. 189. New- ry, Pac. R. Rep. 6. 70. Gray, same, 12. 42; Manual, 127. Chapman, 91. Hook. arct. Pl. 289. Brew. & Wats. Bot. Calif. 1. 128.

PROCUMBENS, Linn. Pursh, 479. Barton, Comp. Fl. Philad. 2. 74. Bigel. Fl. st. 2 ed. 271. Torrey, Compend. 265. Beck, Bot. 79. Darling. Fl. Cestr. 408. T. & Gray, Fl. 1. 316. Eat. & Wr. 457. Cooper, Pac. R. Rep. 12. 58. Chap- n, 91. Gray, Manual, 128.

? *T. campestre.* Muhl. Cat. 70. Torrey, Compend. 266. Eat. & Wr. 457.

T. minimum. Barton, Comp. Fl. Philad. 2. 74. Seringe, DC. Prodr. 2. 206. tr. 4. 1007.

ar. MINUS, Koch. Gray, Manual, 128.

T. reflexum. Linn. Spec. 766. Hill, Veg. Syst. 22, **t. 28, fig. 2.** Walte Willd. Spec. 3. 1357. Michx. Fl. 2. 59. Persoon, 3. 348. Poir. Dict. 8. 6. Hort. Kew. 4. 381. Pursh, 477. Elliott, 2. 202. Seringe, DC. Prodr. Spreng. Syst. 3. 208. Torrey, Compend. 265; Fl. N. Y. 1. 109. Don, Mill. Beck, Bot. 80. Hook, Comp. Bot. Mag. 1. 22; Bot Mag. **t. 3471.** Torr. & Fl. 1. 315 & 691. Eat. & Wr. 456. Engelm. & Gray, Pl. Lindh. 7. Parry, Pl. 611. Lesqx. Fl. Ark. 355. Chapman, 91. Gray, Manual, 127; Hall's Pl. Te Watson, Proc. Am. Acad. 11. 127.

? *T. adscendens.* Hornem. Hort. Hafn. 716. Seringe, DC. Prodr. 2. 207.

T. platycephalum. Bischof, Del. Sem. h. Heidelb. 1839 (Litt.-Ber. zu L 14. 132). Walp. Rep. 1. 644. Dietr. 4. 1005.

T. REPENS, Linn. Michx. Fl. 2. 59. Pursh, 477. Bigel. Fl. Bost. 271. 2. 201. Torrey, Compend. 265; Fl. N. Y. 1. 109. Hook. Fl. Bor.-Am. Beck, Bot. 80. Darling. Fl. Cestr. 407. Torr. & Gray, Fl. 1. 316. Eat. & W Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 189. Newberry, Pac. R. Rep Gray, same, 12. 42; Manual, 127. Chapman, 91. Hook. f. Arct. Pl. 289. Fl. Alaska, 445. Boland. Cat. 9. Brew. & Wats. Bot. Calif. 1. 129.

T. stoloniferum. Muhl. Cat. 70. Eaton, Manual, 5 ed. 474. Beck, Torr. & Gray, Fl. 1. 315. Eat. & Wr. 457. Walp. Rep. 1. 643. Dietr. Engelm. Pl. Upp. Miss. 189. Gray, Pac. R. Rep. 12. 42; Manual, 127. W Proc. Am. Acad. 11. 127.

T. tridentatum. Lindl. Bot. Reg., under t. 1070. Don, Mill. 2. 185. Gray, Fl. 1. 692. Benth. Pl. Hartw. 10 & 304. Torrey, Sitgr. Rep. 158; Rep. 4. 78; Mex. Bound. 54; Bot. Wilkes, 271. Newberry, Pac. R. Re Boland. Cat. 9. Watson, Proc. Am. Acad. 11. 130. Brew. & Wats. Bot 1. 130.

T. involucratum. Smith, Rees Cyc. n. 28. Hook. Fl. Bor.-Am. 1. 133. Gray, Fl. 1. 318. Hook. & Arn. Bot. Beechey, 331.

T. aciculare. Nutt.; Torr. & Gray, Fl. 1. 319. Eat. & Wr. 459. Dietr.

T. polyphyllum. Nutt.; Torr. & Gray, Fl. 1. 319. Eat. & Wr. 459. Wal 1. 645.

T. Nuttallii. Dietr. 4. 1005.

T. fimbriatum, var. *angustifolium.* Gray, Proc. Am. Acad. 8. 379.

Var. **obtusiflorum.** Watson, Proc. Am. Acad. 11. 130. Brew. & Wa Calif. 1. 130.

T. obtusiflorum. Hook. Icon. **t. 281.** Hook. & Arn. Bot. Beechey, 331. & Gray, Fl. 1. 691. Walp. Rep. 1. 645. Dietr. 4. 1005. Benth. Pl. Har Boland. Cat. 9.

T. fimbriatum, var. Watson, King's Rep. 5. 61.

Var. **melananthum.** Watson, Proc. Am. Acad. 11. 130. Brew. & Wats

T. melananthum. Hook. & Arn. Bot. Beechey, 331. Walp. Rep. 1. 645.

T. variegatum, var. *β.* Torr. & Gray, Fl. 1. 317 & 691.

T. aciculare; tridentatum.
adscendens; reflexum.
albopurpureum; Macræi.
altissimum; Beckwithii.
biflorum; Stylosanthes elatior.
campestre; procumbens.
T. ciliolatum; ciliatum.
comosum; Carolinianum.
denudatum; gracilentum.
dichotomum; Macræi.
diversifolium; amplectens.
erectum; Rhynchosia tomentc

ıalum; longipes.
tum; involucratum, tridenta-

ıi; Kingii.
ım; involucratum.
ıatum; tridentatum.
ılyx; Bejariense.
phalum; megacephalum.
ıthum; tridentatum.
phalum; pauciflorum.
m; procumbens.
i; tridentatum.
tum; Carolinianum.
ırum; tridentatum.
le; Melilotus officinalis.
um; pauciflorum.
lum; Carolinianum.

T. pauciflorum; monanthum.
Pennsylvanicum; medium.
physopetalum; fucatum.
platycephalum; reflexum.
polyphyllum; tridentatum.
psoralioides; Psoralea melilotoides.
repens; Carolinianum.
Rœmerianum; amphianthum.
simplicifolia; Rhynchosia tomentosa.
spinulosum; involucratum.
stenophyllum; depauperatum.
subcaulescens; gymnocarpon, longipes.
umbellatum; Carolinianum.
variegatum; pauciflorum, tridentatum.
Willdenovii & *Wormskioldii*; involucratum.

ıcutifolia. Elliott, 2. 225. Seringe, DC. Prodr. 2. 357. Torr. & Gray, Eat. & Wr. 475. Dietr. 4. 1107. Chapman, 98. Wood, Bot. & Fl. 86.
cens. Muhl. Cat. 68.
acutifolia. Alefeld, Bonplandia, 9. 118.

icana. Muhl.; Willd. Spec. 3. 1096. Persoon, 2. 306. Poir. Dict. 8. 554. .. Richard. Frankl. Journ. 17. Seringe, DC. Prodr. 2. 355. Spreng. 8. Torrey, Compend. 263; Fl. N. Y. 1. 154; Nicol. Rep. 147; Stansb. Bot. Wilkes, 266. Hook. Fl. Bor.-Am. 1. 157; Lond. Journ. Bot. 6. 206. . 2. 316. Beck, Bot. 88. Torr. & Gray, Fl. 1. 269. Eat. & Wr. 474. Neuwied. 8. Dietr. 4. 1106. Gray, Pl. Fendl. 30; Pac. R. Rep. 12. 41; d. Philad. 1863, 60; Manual, 139. Seem. Bot. Herald, 51. Engelm. Pl. . 188. Newberry, Pac. R. Rep. 6. 70. Cooper, same, 12. 51. Durand, 161. Lesqx. Fl. Ark. 357. Hook. f. Arct. Pl. 289. Pl. Bourgeau, 256. Alaska, 435; Pl. Wheeler, 36. Watson, King's Rep. 5. 78; Pl. Wheeler, r, Hayd. Rep. 1870, 475; 1871, 481; Fl. Col. 32. Coulter, Hayd. Rep. Brew. & Wats. Bot. Calif. 1. 157.
diffusus. Nutt. in Fras. Cat. 1813.
ıatica. Nutt. Genera, 2. 97.
ntata. Schweinitz, Long's Exped. Appx. 116. Torr. & Gray, Fl. 1. 272. r. 474. Walp. Rep. 1. 718.
us diffusus. Don, Mill. 2. 336. Dietr. 4. 1116.
gana. Nutt.; Torr. & Gray, Fl. 1. 270. Eat. & Wr. 475. Walp. Rep. Dietr. 4. 1106. Durand, Fl. Utah, 161. Torrey, Pac. R. Rep. 4. 76 & 7. 9. , same, 6. 70. Cooper, same, 12. 57. Boland. Cat. 10. Gray, Proc. Am. 380.
rsifolia. Nutt. l. c. Eat. & Wr. 475. Walp. Rep. 1. 715. Dietr. 4. 1107. c. Am. Acad. 8. 380.
ida. Dietr. 4. 1112.
a Americana. Alefeld, Bonplandia, 9. 104.

ıncata. Brewer.; Brew. & Wats. Bot. Calif. 1. 158.
ıcata. Nutt.; Torr. & Gray, Fl. 1. 270. Eat. & Wr. 475. Walp. Rep. Dietr. 4. 1107. Gray, Pl. Fendl. 30; Proc. Am. Acad. 8. 380. Newberry, ep. 6. 70. Kellogg, Proc. Calif. Acad. 1. 57. Porter, Fl. Col. 32.

Var. **linearis**. Watson, Proc. Am. Acad. 11. 134. Brew. & Wats. l. c.

Lathyrus linearis. Nutt.; Torr. & Gray, Fl. 1. 276. Eat. & Wr. 293. V Rep. 1. 721. Torrey, Nicol. Rep. 147; Frem. Rep. 88; Emory's Rep. 408; S Rep. 157; Mex. Bound. 49. Dietr. 4. 1114. Gray, Pl. Wright. 2. 32; Pa Rep. 12. 41; Am. Journ. Sci. 2. 33. 410; Proc. Acad. Philad. 1863, 60. Engelr Upp. Miss. 188. Porter, Hayd. Rep. 1870, 475; Fl. Col. 32. Watson, Pl. Wh 8. Rothrock, same, 36.

Lathyrus dissitifolius. Nutt.; Torr. & Gray, Fl. 1. 277. Eat. & Wr. 293. V Rep. 1. 721. Dietr. 4. 1115.

Orobus dissitifolius. Alefeld, Bonplandia, 9. 145.

V. Caroliniana. Walter, 182. Willd. Spec. 3. 1094. Persoon, 2. 307. Dict. 8. 553. Pursh, 472. Elliott, 2. 224. Seringe, DC. Prodr. 2. 355. Sp Syst. 3. 269. Torrey, Compend. 264. Hook. Fl. Bor.-Am. 1. 157. Don, 2. 315. Beck, Bot. 88. Torr. & Gray, Fl. 1. 271. Eat. & Wr. 474. Dietr. 4. Lesqx. Fl. Ark. 357. Chapman, 98. Gray, Manual, 139.

V. parviflora. Michx. Fl. 2. 69. Persoon, 2. 306. Poir. Dict. 8. 558.

V. Hexameri. Alefeld, Bot. Zeit. 17. 231.

Cracca Caroliniana. Alefeld, Bonplandia, 9. 124.

V. Cracca. Linn. Spec. 735. See syn. in Ledeb. Fl. Ross. 1. 674; Trautv Trudi Peterb. 3. 49, under *Ervum*. — Michx. Fl. 2. 69. Pursh, 472. Nutt. G 2. 97. Bigel. Fl. Bost. 2 ed. 269. Torrey, Compend. 264; Fl. N. Y. 1. 155. Fl. Bor.-Am. 1. 157. Beck, Bot. 88. Torr. & Gray, Fl. 1. 270. Eat. & W Lange, Pl. Grönl. 135. Hook. f. Arct. Pl. 289. Gray, Manual, 139.

? *V. Douglassii*. Torrey, Am. Journ. Sci. 1. 4. 66.

V. exigua. Nutt.; Torr. & Gray, Fl. 1. 272. Eat. & Wr. 475. Walp. Rep. Dietr. 4. 1107. Gray, Pl. Wright. 2. 32. Torrey, Pac. R. Rep. 4. 76; Mex. B 49. Parry, Am. Naturalist, 9. 269. Watson, Proc. Am. Acad. 11. 114. B Wats. Bot. Calif. 1. 158.

Cracca exigua. Alefeld, Bonplandia, 9. 119.

V. gigantea. Hook. Fl. Bor.-Am. 1. 157. Don, Mill. 2. 318. Torr. & Gr 1. 270. Eat. & Wr. 474. Torrey, Pac. R. Rep. 4. 76; Bot. Wilkes, 266. berry, Pac. R. Rep. 6. 70. Cooper, same, 12. 31 & 57. Gray, Proc. Am. 8. 380. Rothr. Fl. Alask. 445. Boland. Cat. 10. Brew. & Wats. Bot. Calif.

V. Sitchensis. Bongard, Veg. Sitch. 129 (Presl, Repert. Bot. 1. 312). Linnæa, 10. 591. Ledeb. Fl. Ross. 1. 673. Dietr. 4. 1103.

V. Hookeriana. Walp. Rep. 1. 715.

V. HIRSUTA, Koch. Chapman, 98. Gray, Manual, 139.

V. Mitchelli. Raf. Préc. Découv. 37, & Desv. Journ. Bot. 1814, 269. Poir. 5. 473. Elliott, 2. 224. Seringe, DC. Prodr. 2. 360. Don, Mill. 2. 319.

Ervum hirsutum, Linn. Torrey, Compend. 264; Fl. N. Y. 1. 156. Hook. F Am. 1. 158. Don, Mill. 2. 326. Beck, Bot. 89. Darling. Fl. Cestr. 426. T Gray, Fl. 1. 273. Eat. & Wr. 238.

V. Leavenworthii. Torr. & Gray, Fl. 1. 271; Pac. R. Rep. 2. 162. Eat. 475. Walp. Rep. 1. 716. Dietr. 4. 1107. Gray, Pl. Lindh. 170.

Cracca erotanthos. Alefeld, Bonplandia, 9. 118.

V. Ludoviciana. Nutt.; Torr. & Gray, Fl. 1. 271. Eat. & Wr. 475. Walp 1. 716. Engelm. & Gray, Pl. Lindh. 6. Dietr. 4. 1107. Gray, Hall's Pl. 7. Young, Fl. Texas, 229.

V. Cracca, var. *pauciflora*. Hook. Comp. Bot. Mag. 1. 23.

Ervum pilosum. Engelm. in Œstr. Bot. Zeit. 1859, 363.

Ervum tridentatum. Alefeld, Œstr. Bot. Zeit. 1859, 363.
Cracca Ludoviciana & tridentata. Alefeld, Bonplandia, 9. 119.

V. micrantha. Nutt ; Torr. & Gray, Fl. 1. 271. Eat. & Wr. 475. Walp. Rep. 1. 716. Gray, Pl. Fendl. 30; Hall's Pl. Texas, 7. Torrey, Marcy's Rep. 283. Chapman, 98. Wood, Bot. & Fl. 86. Porter, Fl. Col. 32.
V. minutiflora. Dietr. 4. 1107.
Ervum emarginatum. Engelm.; Alefeld in Œstr. Bot. Zeit. 1859, 363.
Abacosa micrantha. Alefeld, Bonplandia, 9. 104.

V. pulchella. HBK. Nov. Gen. 6. 499, **t. 583.** Seringe, DC. Prodr. 2. 357. Gray, Pl. Wright. 2. 32. Torrey, Sitgr. Rep. 157; Mex. Bound. 49. Brew. & Wats. Bot. Calif. 1. 158.
V. exigua. Torr. & Gray, Pac. R. Rep. 2. 162.
Cracca pulchella. Alefeld, Bonplandia, 9. 119.

V. SATIVA, Linn. Walter, 183. Michx. Fl. 2. 69. Pursh, 471. Bigel. Fl. Bost. 2 ed. 270. Elliott, 2. 223. Torrey, Compend. 263; Fl. N. Y. 1. 156. Hook. Fl. Bor.-Am. 1. 157. Beck, Bot. 89. Darling. Fl. Cestr. 425. Torr. & Gray, Fl. 1. 272. Eat. & Wr. 474. Chapman, 98. Pl. Bourgeau, 256. Gray, Manual, 138. Brew. & Wats. Bot. Calif. 1. 158.
V. Canadensis. Zuccagni, Obs. Bot. n. 83. Seringe, DC. Prodr. 2. 361. Don, Mill. 2. 322. Dietr. 4. 1111.

Var. ANGUSTIFOLIA, Seringe. Gray, Manual, 138.

V. TETRASPERMA, Loisel. Torr. & Gray, Fl. 1. 272. Eat. & Wr. 475. Torrey, Fl. N. Y. 1. 155. Gray, Manual, 139.
Ervum tetraspermum, Linn. Torrey, Compend. 264. Hook. Fl. Bor.-Am. 1. 158. Beck, Bot. 89.
V. pusilla. Muhl.; Willd. Spec. 3. 1106. Persoon, 2. 308. Poir. Dict. 8. 564. Pursh, 471. Bigel. Fl. Bost. 2 ed. 270. Seringe, l. c. 363. Don, Mill. 2. 321.

V. Canadensis; sativa.
Cracca; Ludoviciana.
Douglassii; Cracca.
exigua; pulchella.
Hexameri; Caroliniana.
Hookeriana; gigantea.
lutescens; acutifolia.
minutiflora; micrantha.
Mitchelli; hirsuta.
V. Oregana; Americana.
parviflora; Caroliniana.
pusilla; tetrasperma.
Sitchensis; gigantea.
sparsifolia; Americana.
stipulacea; Lathyrus polymorphus.
sylvatica & truncata; Americana.
trifida; tridentata.

VIGNA luteola. Benth. in Mart. Fl. Bras. 15[1]. 194, **t. 50, fig. 2,** with syn. Grisb. Fl. Brit. W. Ind. 195, with syn.
Dolichos luteolus. Jacq. Hort. Vind. 1. 39, **t. 90.** Lam. Dict. 2. 299. Pursh, 470. Nutt. Genera, 2. 112. Elliott, 2. 231. Eat. & Wr. 227.
V. glabra. Savi, Mem. 3. 8 ? DC. Prodr. 2. 401. Hook. Comp. Bot. Mag. 1. 24. Don, Mill. 2. 360. Torr. & Gray, Fl. 1. 281 & 686. Engelm. & Gray, Pl. Lindh. 6. Dietr. 4. 1197. Smith, Proc. Acad. Philad. 1867, 19. Chapman, 106.
V. villosa. Savi, l. c. DC. Prodr. 2. 401. Torrey, Mex. Bound. 50.
? *V. hirsuta.* Feay; Wood, Bot. & Fl. 96.
Var. **angustifolia.**
V. glabra, var. *angustifolia.* Engelm. & Gray, Pl. Lindh. 6.

WISTARIA frutescens. Poir. in Lam. Ill. 3. 674. DC. Prodr. 2. 390. Audubon, Birds, **t. 95.** Sweet, Brit. Fl. Gard. 2 ser. **t. 104.** Don, Mill. 2. 348. Maund, Bot. Gard. 9, **t. 386.** Spach, Hist. Veg. 1. 321. Hook. Comp. Bot. Mag. 1. 24. Torr. & Gray, Fl. 1. 283. Walp. Rep. 1. 770. Loud. Arbor. 2. 647, **f. 359.** Dietr. 4. 1202. Curtis, Bot. N. Car. 118. Chapman, 95. Gray, Manual, 131.

Anonymos frutescens. Walter, 186.

Glycine frutescens. Linn. Spec. 753. Hill, Veg. Syst. 21, **t. 7, fig. 2.** Marshall, Arbust. 55. Lam. Dict. 2. 738. Ait. Hort. Kew. 3. 35. Willd. Spec. 3. 1067; Enum. 757. Michx. Fl. 2. 63. Persoon, 2. 301. Sims, Bot. Mag. **t. 2103.** André, Revue Hort. 1862, 12 & 49, with **t.**

Apios frutescens. Pursh, 474.

Diplonyx elegans. Raf. Fl. Lud. 101. Poir. l. c. 3. 675. Spreng. Syst. 3. 279.

W. speciosa. Nutt. Genera, 2. 116. Spreng. Syst. 3. 255.

Thyrsanthus frutescens. Elliott, Journ. Acad. Philad. 1. 371 (Litt.-Ber. zu Linnæa, 1828, 164); Sketch, 2. 237.

Thyrsanthus Floridana. Croom, Am. Journ. Sci. 1. 25. 75 & 1. 28. 167.

Phaseolus frutescens. Eat. & Wr. 354.

Var. **macrostachya.** Torr. & Gray, Fl. 1. 283.

ZORNIA diphylla. Persoon, 2. 318. See syn. in Benth. Mart. Fl. Bras. 15[1]. 80 (**t. 21, 22**), & Griseb. Fl. Brit. W. Ind. 185.

Var. **reticulata.** Benth. l. c.

Z. reticulata. Smith, Rees Cyc. n. 2. DC. Prodr. 2. 316. Gray, Pl. Wright. 2. 46. Seem. Bot. Herald, 250.

Z. tetraphylla. Michx. Fl. 2. 76, **t. 41.** Persoon, 2. 318. Pursh, 484. Elliott, 2. 219. DC. Prodr. 2. 317. Spreng. Syst. 3. 311. Don, Mill. 2. 280. Hook. Comp. Bot. Mag. 1. 22. Torr. & Gray, Fl. 1. 354. Eat. & Wr. 485. Dietr. 4. 1129. Benth. in Mart Fl. Bras. 15[1]. 83. Chapman, 100. Wood, Bot. & Fl. 87. Gray, Hall's Pl. Texas, 7.

Anonymos bracteata. Walter, 181.

Z. bracteata. Gmelin, Syst. 1096.

Hedysarum tetraphyllum. Poir. Dict. 6. 405.

ROSACEÆ.

ACÆNA trifida. Ruiz & Pavon, Fl. Peruv. 1. 67, **t. 104, f. C.** [Vahl, Enum. 1. 296. Persoon, 1. 142. Roem. & Schult. Syst. 1. 269. DC. Prodr. 2. 593. Gay, Fl. Chil. 2. 292.] Torrey, Pac. R. Rep. 4. 84; Bot. Wilkes, 294. Brew. & Wats. Bot. Calif. 1. 186.

A. pinnatifida. Lindl. Bot. Reg. 15, **t. 1271,** not Ruiz & Pav. Hook. & Arn. Bot. Beechey, 339. Torr. & Gray, Fl. 1. 432. Torrey, Mex. Bound. 63, **t. 19.** Boland. Cat. 10.

ADENOSTOMA fasciculatum. Hook. & Arn. Bot. Beechey, 139 & 338, **t. 30.** Torr. & Gray, Fl. 1. 430. Walp. Rep. 2. 43 & 5. 655. Torrey, Frem. Rep. 11; Emory's Rep. 140; Pac. R. Rep. 4. 84 & 7. 11; Mex. Bound. 63; Bot. Wilkes, 293. Benth. Bot. Sulph. 14; Pl. Hartw. 309. Presl, Epimel. Bot. 200. Lindl. in Journ. Hort. Soc. Lond. 6. 55 & fig. Boland. Proc. Calif. Acad. 3. 79; Cat. 10. Baillon, Hist. Pl. 1. 383, **f. 438.** Brew. & Wats. Bot. Calif. 1. 184.

Var. **obtusifolium.** Watson, Bot. Calif. 1. 184.

A. sparsifolium. Torrey, Emory's Rep. 140; Mex. Bound. 63, t. **20.** Baillon, Hist. Pl. 1. 384. Brew. & Wats. Bot. Calif. 1. 185.

AGRIMONIA Eupatoria. Linn. Spec. 448. See syn. in Ledeb. Fl. Ross. 2. 31; Pritzel, Icon. Bot. 27. — Walter, 131. Pursh, 335. Bigel. Fl. Bost. 189. *Elliott*, 1. 535. Torrey, Fl. U. S. 473; Fl. N. Y. 1. 207. Spreng. Syst. 2. 461. *Raf.* Med. Bot. 1. 34, f. **3.** Hook. Fl. Bor.-Am. 1. 196. Don, Mill. 2. 563, f. **73.** *Beck*, Bot. 108. Torr. & Gray, Fl. 1. 431. C. A. Meyer, Rev. Agrim. 9 (Ann. Sci. Nat. 2. 18. 374). Eat. & Wr. 116. Dietr. 3. 26. Gray, Pl. Fendl. 41; Manual, 151. Engelm. Pl. Upp. Miss. 190. Chapman, 122. Porter, Fl. Col. 34. Brew. & Wats. Bot. Calif. 185.

A. pilosa. Pl. Bourgeau, 256.

A. platycarpa, rostellata & gryposepala. Wallroth, Beitr. Bot. 1. 38, 42 & 49, t. **1,** f. **5, 8.** Walp. Rep. 2. 38 & 39.

Var. **parviflora.** Hook. Fl. Bor.-Am. 1. 196, excl. syn. Torr. & Gray, Fl. 1. 431. Torrey, Fl. N. Y. 1. 206.

A. minor. Muhl. Ind. Fl. Lanc. 170.

A. striata. Michx. Fl. 1. 287. Poir. Suppl. 5. 539. Seringe, DC. Prodr. 2. 588. Meyer, ll. cc. 15 & 379. Don, Mill. 2. 563. Eat. & Wr. 117. Walp. Rep. 2. 41.

A. parviflora. Spreng. Syst. 2. 461, not Ait. Seringe, l. c. Beck, Bot. 108.

A. microcarpa & pubescens. Wallroth, l. c. 39 & 45, t. **1,** f. **3, 7.** Walp. l. c.

A. incisa. Torr. & Gray, Fl. 1. 431. Meyer, ll. cc. 16 & 379. Walp. Rep. 2. 41. Dietr. 3. 26. Bertoloni, Bot. Misc. 11. 20, t. **4.** Chapman, 122. Wood, Cl.-Book, 337.

A. parviflora, var. *incisa.* Wood, Bot. & Fl. 108.

A. parviflora. Ait. Hort. Kew. 2. 130. Willd. Spec. 2. 876. Persoon, 2. 9. Poir. Suppl. 1. 263. Pursh, 336. Don, Mill. 2. 563. Hook. Comp. Bot. Mag. 1. 24. Torr. & Gray, Fl. 1. 431. Meyer, ll. cc. 16 & 379. Eat. & Wr. 117. Walp. Rep. 2. 41. Dietr. 3. 27. Engelm. Pl. Upp. Miss. 190. Lesqx. Fl. Ark. 359. Chapman, 122. Hook. f. in Mart. Fl. Bras. 14^2. 67. Gray, Manual, 151. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 322.

A. Eupatoria. Michx. Fl. 1. 287, chiefly.

A. suaveolens. Pursh, 336. Poir. Suppl. 5. 539. Elliott, 1. 536. Spreng. Syst. 2. 461. Seringe, DC. Prodr. 2. 588. Don, Mill. 2. 563. Hook. Comp. Bot. Mag. 1. 24. Beck, Am. Journ. Sci. 1. 14. 112. Eat. & Wr. 117. Meyer, ll. cc. 16 & 379. Wallroth, Beitr. Bot. 1. 53, t. **1,** f. **10.** Walp. Rep. 2. 40 & 41.

A. serrifolia. Wallroth, l. c. 1. 40. Walp. Rep. 2. 38.

ALCHEMILLA alpina. Linn. Spec. 123. [Oeder, Fl. Dan. t. 49. Engl. Bot. 4, t. **244.**] — Pursh, 112. Nutt. Genera, 1. 106. Roem. & Schult. Syst. 3. 470. Torrey, Fl. U. S. 191. Spreng. Syst. 1. 454. DC. Prodr. 2. 588. Hook. Fl. Bor.-Am. 1. 197. Beck, Bot. 114. Torr. & Gray, Fl. 1. 432. Eat. & Wr. 119. Bigel. Fl. Bost. 3 ed. 63. Durand, Pl. Kane. in Journ. Acad. Philad. 1856, 190 (Kane's Exped. 2. 453). Lange, Pl. Groenl. 135. Hook. f. Journ. Linn. Soc. 5. 83; Arct. Pl. 289. Gray, Manual, 151.

A. arvensis. Scop. Fl. Carn. 2 ed. 1. 115. [DC. Prodr. 2. 590. Engl. Bot. 15, t. **1011.**] — Torr. & Gray, Fl. 1. 432. Curtis, Am. Journ. Sci. 2. 7. 406. Torrey, Pac. R. Rep. 4. 84; Bot. Wilkes, 293. Chapman, 123. Gray, Manual, 151. Boland. Cat. 10. Brew. & Wats. Bot. Calif. 185.

Aphanes arvensis. Linn. Spec. 123. [Oeder, Fl. Dan. t. **973.** Lam. Ill. 1. 348, t. **87.** Schkuhr, Handb. 1. 87, t. **26.**] Nutt. Genera, 1. 106. Eat. & Wr. 129.

Alchemilla Aphanes. Pursh, 112. Spreng. Syst. 1. 454.

A. cuneifolia. Nutt.; Torr. & Gray, Fl. 1. 432. Walp. Rep. 2. 42.

A. occidentalis. Nutt. l. c. Walp. Rep. 2. 42. Gray, Proc. Am. Acad. 8. 381. Watson, same, 11. 114.

A. vulgaris. Linn. Spec. 132. [Oeder, Fl. Dan. t. **693.** Engl. Bot. t. **597.**] See syn. in Ledeb. Fl. Ross. 2. 29; Pritzel, Icon. Bot. 32. — Hook. Fl. Bor.-Am. 1. 197. Torr. & Gray, Fl. 1. 432. Seller, Ann. & Mag. Nat. Hist. 1. 16. 171. Durand, Pl. Kane, 1856, 190 (Kane's Exp. 2. 453). Lange, Pl. Groenl. 135. Hook. f. in Journ. Linn. Soc. 1. 116 & 5. 83; Arct. Pl. 289. Ascherson, Fl. Lab. in Flora, 43. 370.

AMELANCHIER alnifolia. Nutt. in Journ. Acad. Philad. 7. 22. Roemer, Syn. Monog. 3. 147. Cooper, Am. Naturalist, 3. 407. Wenzig, Linnæa, 38. 113. Decaisne, Mem. Fam. Pom. in Nouv. Arch. Mus. 10. 135. Watson, Pl. Wheeler, 8 Brew. & Wats. Bot. Calif. 1. 190.

Pyrus sanguinea. Pursh, 340, in part.

Aronia alnifolia. Nutt. Genera, 1. 306. Eat. & Wr. 135.

Pyrus alnifolia. Spreng. Syst. 2. 509.

A. ovalis, var. *semiintegrifolia.* Hook. Fl. Bor.-Am. 1. 202. Don, Mill. 2. 604.

A. florida. Lindl. Bot. Reg. 19, t. **1589** (Litt.-Ber. zu Linnæa, 1835, [illegible] Spach, Hist. Veg. 2. 86. Walp. Rep. 2. 55. Loud. Arbor. 2. 870, f. **633,** 6[illegible] Roemer, Syn. Monog. 3. 144. Decaisne, Mem. Fam. Pom. 136.

A. Canadensis, var. *alnifolia.* Torr. & Gray, Fl. 1. 473. Walp. Rep. 2. 55. Di[illegible] 3. 158. Torrey, Frem. Rep. 89; Pac. R. Rep. 4. 85; Mex. Bound. 64; Bot. Will[illegible] 291. Hook. in Lond. Journ. Bot. 6. 220. Gray, Pl. Fendl. 42; Ives's Rep. 11; P[illegible] Am. Acad. 8. 382; Manual, 162. Newberry, Pac. R. Rep. 6. 73. Cooper, sa[illegible] 12. 30. Kellogg, Proc. Calif. Acad. 1. 59. Bolander, same, 3. 80; Cat. 11. Wat[illegible] King's Rep. 5. 92. Porter, Hayd. Rep. 1871, 481; Fl. Col. 38. Coulter, Hayd. R[illegible] 1872, 765. Rothr. Pl. Wheeler, 37.

A. Canadensis, var. *pumila.* Torr. & Gray, Fl. 1. 474. Walp. l. c. Dietr. l. [illegible]

A. pumila. Roem. Syn. Monog. 3. 145.

A. Canadensis, var. *oblongifolia.* Benth. Pl. Hartw. 309.

A. Canadensis. Anderson, Cat. Pl. Nev. 120.

A. Canadensis. Torr. & Gray, Fl. 1. 473. Walp. Rep. 2. 55. Dietr. 3. [illegible] Torrey, Fl. N. Y. 1. 225. Emerson, Trees of Mass. 1. 443, & 2 ed. 2. 503, fig. E[illegible] ry, Pl. Minn. 612. Engelm. Pl. Upp. Miss. 191. Richard. Arct. Exped. 428. Se[illegible] Bot. Herald, 52. Hook. f. Arct. Pl. 290 & 327. Curtis, Bot. N. Car. 68. Ch[illegible] man, 129. Pl. Bourgeau, 256. Gray, Manual, 162. Maximowicz, Bull. Ac[illegible] Petersb. 19. 175 (Mélang. Biolog. 9. 174).

Mespilus Canadensis. Linn. Spec. 1. 478, excl. syn. Gronov. Walter, 148. [illegible] Hort. Kew. 2. 173.

Crataegus tomentosa. Linn. Spec. 476, syn. Gronov.

Pyrus Botryapium. Linn. f. Suppl. 255. Wangenh. Amer. t. **28.** Ehrhart, Be[illegible] 1. 183 & 2. 68. Willd. Spec. 2. 1013; Enum. 525. Ait. f. Hort. Kew. 3. 207. Pursh, 339. Bigel. Fl. Bost. 196. Guimp. Otto & Hayne, t. **79.** Spreng. Syst. 2. 509. Audubon, Birds, t. **60.**

Crataegus racemosa. Lam. Dict. 1. 84. Nouv. Duham. 4. 133. Poir. Suppl. 1. 292.

Mespilus nivea. Marshal, Arbust. 90.

Mespilus Canadensis, var. *β. cordata.* Michx. Fl. 1. 291.

Aronia Botryapium. Persoon, 2. 39. Nutt. Genera, 1. 557. Elliott, 1. 557. Torrey, Fl. U. S. 479. Eat. & Wr. 135.

Mespilus arborea. Michx. f. Arb. Am. 3. 68, t. **11.**

Amelanchier Botryapium. Lindl. Trans. Linn. Soc. 13. 100. DC. Prodr. 2. 632. Hook. Fl. Bor.-Am. 1. 202. Don, Mill. 2. 604. Beck, Bot. 112. Spach, Hist. Veg. 2. 84. Loud. Arbor. 2. 874, **t. 162, 163,** & **f. 627–629.** Roem. Syn. Monog. 3. 145. Wenzig, Linnæa, 38. 110. Decaisne, Mem. Fam. Pom. 135.

Aronia cordata. Raf. Med. Bot. 2. 196.

Amelanchier ovalis. Hook. Fl. Bor.-Am. 1. 202, in part.

Pyrus Bartramiana & *Wangenheimiana.* Tausch, Flora, 21. 715. Roem. Syn. Monog. 3. 145 & 146 (as *Amelanchier*).

Var. **rotundifolia.** Torr. & Gray, Fl. 1. 473. Walp. Rep. 2. 55. Dietr. 3. 158. Torrey, Fl. N. Y. 1. 225. Cooper, Pac. R. Rep. 12. 60. Chapman, 129. Gray, Manual, 162.

? *Mespilus Amelanchier.* Walter, 148.

Pyrus ovalis. Willd. Arbor. 259; Spec. 2. 1014; Enum. 525. Spreng. Syst. 2. 509. Wenzig, Linnæa, 38. 111.

Mespilus Canadensis, var. *rotundifolia.* Michx. Fl. 1. 291.

Aronia ovalis. Persoon, 2. 40. Elliott, 1. 558.

Amelanchier ovalis. Lindl. Trans. Linn. Soc. 13. 100.

? *Aronia latifolia.* Riddell, Suppl. Cat. Pl. Ohio, 24.

? *Xeromalon obovatum.* Raf. New Flora, 3. 12.

Amelanchier rotundifolia. Roem. Syn. Monog. 3. 146.

Var. (?) **oblongifolia.** Torr. & Gray, Fl. 1. 473. Walp. Rep. 2. 55. Dietr. 3. 158. Torrey, Fl. N. Y. 1. 225; Nicol. Rep. 149. Emerson, Trees of Mass. 1. 444, & 2 ed. 2. 504, **fig.** Gray, Manual, 162.

Cratægus spicata. Lam. Dict. 1. 84. Nouv. Duham. 4. 132. Poir. Suppl. 1. 292.

Mespilus Canadensis, var. *obovalis.* Michx. Fl. 1. 291.

Pyrus ovalis. Pursh, 340. Schrank, Pfl. Lab. 26. Bigel. Fl. Bost. 195.

Aronia ovalis. Torrey, Fl. U. S. 479. Eat. & Wr. 135.

Amelanchier ovalis. DC. Prodr. 2. 632. Meyer, Pl. Lab. 81. Hook. Fl. Bor.-Am. 1. 202, in part. Don, Mill. 2. 604. Beck, Bot. 112. Spach, Hist. Veg. 2. 85. Loud. Arb. 2. 876, **f. 632.**

Amelanchier intermedia. Spach, Hist. Veg. 2. 85. Wenzig, Linnæa, 38. 112.

? *Pyrus Neumanniana.* Tausch, l. c. Roem. l. c. 3. 147 (as *Amelanchier*).

Amelanchier oblongifolia. Roem. l. c.

A. spicata. Decaisne, Mem. Fam. Pom. 135, **t. 9, v.**

Var. (?) **oligocarpa.** Torr. & Gray, Fl. 1. 474. Walp. Rep. 2. 55. Dietr. 3. 158. Torrey, Fl. N. Y. 1. 226. Gray, Manual, 162.

Mespilus Canadensis, var. *oligocarpa.* Michx. Fl. 1. 291.

Pyrus sanguinea. Pursh, 340, in part. Bigel. Fl. Bost. 2. ed. 196. Spreng. Syst. 2. 509.

Aronia sanguinea. Nutt. Genera, 1. 306. Eat. & Wr. 135.

Amelanchier sanguinea. DC. Prodr. 2. 633. Lindl. Bot. Reg. 14, **t. 1171.** Hook. Fl. Bor.-Am. 1. 203. Don, Mill. 2. 604. Beck, Bot. 113. Spach, Hist. Veg. 2. 86, **t. 9, f. R.** Nees, Pl. Neuwied, 9 ? Loud. Arb. 2. 875, **f. 630, 631.** Roem. Syn. Monog. 3. 145. Wenzig, Linnæa, 38. 114. Decaisne, Mem. Fam. Pom. 136.

A. oligocarpa. Roem. Syn. Monog. 3. 145.

CANOTIA holacantha. Torrey, Pac. R. Rep. 4. 68. Gray, Ives's Rep. 15. Brew. & Wats. Bot Calif. 1. 190.

Koeberlinia (?) —— ? Engelm. in Emory's Rep. 158, **f. 14.**

CERASUS. See under *Prunus.*

C. borealis; P. Pennsylvanica.
Canadensis; P. Americana.
cerasifera; P. maritima.
Capuli; P. Capollin.
depressa; P. pumila.
Duerinckii; P. Virginiana.
erecta & *glandulosa;* P. emarginata.
glauca; P. pumila.
hiemalis; P. Americana.
hirsuta; P. Virginiana.
C. littoralis; P. maritima.
micrantha; P. Virginiana.
mollis; P. emarginata.
nigra; P. Americana.
obovata; P. Virginiana.
persicifolia; P. Pennsylvanica.
pubescens & *pygmæa;* P. maritima.
serotina; P. demissa, Virginiana.
Susquehannæ; P. pumila.
Virginiana; P. serotina.

CERCOCARPUS breviflorus. Gray, Pl. Wright. 2. 54. Walp. Ann. 4. 64

C. fothergilloides. HBK. Nov. Gen. 6. 232, t. **559.** DC. Prodr. 2. 589. Be Pl. Hartw. 16. Gray, Pl. Wright. 1. 68. Seem. Bot. Herald, 281. Baillon, H Plant. 1. 381, f. **436, 437.** (Mexican.)

C. intricatus. Watson, Proc. Am. Acad. 10. 346. Parry, Am. Naturalist, 9. 2 Proc. Davenport Acad. 1. 147, referring it to *C. ledifolius.*

C. breviflorus. Watson, King's Rep. 5. 83.

C. ledifolius. Nutt.; Torr. & Gray, Fl. 1. 427. Hook. Icon. t. **324.** Walp. R 2. 46. Dietr. 3. 119. Nutt. Sylva, 2. 28, t. **51.** Watson, King's Rep. 5. 83 & 4 Pl. Wheeler, 8. Porter, Hayd. Rep. 1871, 481. Coulter, same, 1872, 765. Pa Am. Naturalist, 9. 201 & 270; Proc. Dav. Acad. 1. 146 & 147. Engelm. in Si son's Rep. 435. Brew. & Wats. Bot. Calif. 1. 174.

C. parvifolius. Nutt.; Hook. & Arn. Bot. Beechey, 337. Torr. & Gray, 1. 427; Pac. R. Rep. 2. 164. Hook. Icon. t. **323.** Walp. Rep. 2. 45. Tor Frem. Rep. 89; Emory's Rep. 139; Sitgr. Rep. 158; Pac. R. Rep. 4. 83; M Bound. 63; Bot. Wilkes, 287. Dietr. 3. 119. Gray, Pl. Fendl. 41; Pl. Wri 1. 68 & 2. 54; Proc. Bost. Soc. Nat. Hist. 7. 146; Am. Journ. Sci. 2. 33. 411; P Acad. Philad. 1863, 61. Engelm. Pl. Upp. Miss. 190. Boland. Proc. Calif. A 3. 79; Cat. 10. Porter, Hayd. Rep. 1870, 475; 1871, 481; Fl. Col. 34. Wat King's Rep. 5. 82. Rothr. Pl. Wheeler, 37. Brew. & Wats. Bot. Calif. 1. 174.

C. fothergilloides. Torrey, Ann. Lyc. N. Y. 2. 198.

Var. **glaber.** Watson, Bot. Calif. 1. 175.

C. betulæfolius. Nutt.; Hook. Icon. t. **322.** Walp. Rep. 2. 46.

C. betuloides. Nutt.; Torr. & Gray, Fl. 1. 427. Hook. in Lond. Journ. 6. 218.

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Var. **Nuttallii.** Torr. & Gray, Fl. 1. 433. Engelm. Pl. Upp. Miss. 190.

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C. retusus, incanus & prunifolius? Raf. New Fl. 3. 26.

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C. Mexicana. D. Don, Trans. Linn. Soc. 14. 574, t. 22, f. 1–6. Don, Mill. 2. 528. Benth. Pl. Hartw. 16. Seem. Bot. Herald, 283. Gray, Pl. Wright. 2. 55; Ives's Rep. 11. Torrey, Pac. R. Rep. 4. 84; Mex. Bound. 63. Watson, King's Rep. 5. 83; Pl. Wheeler, 8. Parry, Am. Naturalist, 9. 270. Brandegee, Fl. S. W. Col. 236. Brew. & Wats. Bot. Calif. 1. 175.

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C. elliptica & lucida. Elliott, 1. 548 & 549.

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Anthomeles æstivalis. Roem. Syn. Monog. 3. 141.

C. apiifolia. Michx. Fl. 1. 287. Persoon, 2. 38. Pursh, 336. Nutt. Genera, 1. 305. Elliott, 1. 552. DC. Prodr. 2. 627. Don, Mill. 2. 599. Audubon, Birds, t. 192. Hook. Comp. Bot. Mag. 1. 25. Torr. & Gray, Fl. 1. 467. Eat. & Wr. 212. Dietr. 3. 160. Loud. Arb. 2. 824, t. 136 & f. 588, 589. Roem. Syn. Monog. 3. 121. Chapman, 127. Gray, Manual, 159; Hall's Pl. Texas, 9.

C. Oxyacantha? Walter, 147.

Mespilus apiifolia. Marsh. Arbust. 89. Poir. Suppl. 4. 68. Spreng. Syst. 2. 508. Spach, Hist. Veg. 2. 67.

Mespilus monogyna, var. *apiifolia.* Koch, Dendr. 1. 160.

C. Oxyacantha, var. *apiifolia.* Regel, Rev. Crat. 119.

C. arborescens. Elliott, 1. 550. Torr. & Gray, Fl. 1. 466. Eat. & Wr. 212. Dietr. 3. 160. Walp. Rep. 2. 58. Nutt. Sylva, 2. 10, t. 45. Chapman, 127. Wood, Cl.-Book, 331; Bot. & Fl. 111. Gray, Hall's Pl. Texas, 9. Young, Fl. Texas, 259.

Phœnopyrum arborescens. Roem. Syn. Monog. 3. 153.
C. Crus-galli, var. *pyracanthifolia.* Regel, Rev. Crat. 109, in part.

C. berberifolia. Torr. & Gray, Fl. 1. 469. Dietr. 3. 159. Walp. Rep. 2. 59 Roem. Syn. Monog. 3. 115. Wood, Cl.-Book, 332. Regel, Rev. Crat. 123.
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C. coccinea. Linn. Spec. 476. Walter, 147. Ait. Hort. Kew. 2. 167. Willd Spec. 2. 1000, excl. syn. Michx. Fl. 1. 288. Persoon, 2. 36. Pursh, 337. Schrank Pfl. Lab. 26. Elliott, 1. 553. Torrey, Fl. U. S. 474; Fl. N. Y. 1. 221; Emory Rep. 408. DC. Prodr. 2. 627. Hook. Fl. Bor.-Am. 1. 201; Bot. Mag. t. **343** Don, Mill. 2. 599. Meyer, Pl. Lab. 82. Beck, Bot. 112. Lindl. Bot. Reg. t. **1957**. Darling. Fl. Cestr. 293. Torr. & Gray, Fl. 1. 465. Bigel. Fl. Bost. 3 206. Eat. & Wr. 211. Nees, Pl. Neuwied, 9? Dietr. 3. 160. Walp. Rep. 2. Loud. Arb. 2. 816, t. **121** & f. **564–566.** Emerson, Trees of Mass. 434, & 2 2. 493, t. Richard. Arct. Exped. 427. Gray, Pac. R. Rep. 12. 43; Manual, Curtis, Bot. N. Car. 82. Lesqx. Fl. Ark. 359. Chapman, 127. Pl. Bourgeau, Brandegee, Fl. S. W. Col. 236?
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Mespilus rotundifolia. Ehrhart, Beitr. 3. 20. Wendl. l. c. 700. Watson, Den Brit. 1, t. **58**. Koch, Dendr. 1. 148.
Pyrus glandulosa. Moench, Meth. 680.
C. glandulosa. Willd. Spec. 2. 1002, excl. syn. Pursh, 337, in part. Tor Fl. U. S. 475. DC. Prodr. 2. 627. Lodd. Bot. Cab. t. **1012**. Hook. Fl. Bor.-A 1. 201. Don, Mill. 2. 599. Beck, Bot. 112. Eat. & Wr. 211. Loud. Arb. 2. 8 t. **122** & f. **550, 567, 568**. Richard. Arct. Exped. 427. Curtis, Bot. N. Car. Regel, Rev. Crat. 120.
Mespilus glandulosa. Willd. Enum. 523. Spreng. Syst. 2. 507. Spach, H Veg. 2. 62. Koch, Dendr. 1. 145.
Mespilus pubescens. Wendl. in Regensb. Flora, 1823, 700.
C. Crus-galli. Bigel. Fl. Bost. 2 ed. 194.
Mespilus Wendlandii. Opiz, Regensb. Flora, 1834, 590.
C. macracantha. Lodd.; Loud. Arb. 2. 819, t. **125** & f. **572, 573.**
C. glandulosa, var. *macracantha.* Lindl. Bot. Reg. 22, t. **1912.**
Mespilus flabellata. Spach, Hist. Veg. 2. 63. Koch, Dendr. 1. 148.
Halmia flabellata & *Anthomeles rotundifolia.* Roem. Syn. Monog. 3. 136 & 140.
Phœnopyrum coccineum & *Wendlandii.* Roem. l. c. 3. 156.

Var. **viridis.** Torr. & Gray, Fl. 1. 465. Torrey, Nicol. Rep. 149; Pac. R. R 4. 86?
C. viridis. Linn. Spec. 476. Willd. Spec. 2. 1001. Persoon, 2. 36. Ellio 1. 551. DC. Prodr. 2. 630. Don, Mill. 2. 601. Eat. & Wr. 212. Wood, Cl.-Bo 332; Bot. & Fl. 111.
Phœnopyrum viride. Roem. Syn. Monog. 3. 156.
Mespilus viridis. Koch, Dendr. 1. 149.
C. glandulosa, var. *rotundifolia.* Regel, Rev. Crat. 120.

Var. **populifolia.** Torr. & Gray, Fl. 1. 465.
C. populifolia. Elliott, 1. 553. Eat. & Wr. 212.
Mespilus populifolia. Lam. Dict. 4. 447.
Phœnopyrum populifolium. Roem. Syn. Monog. 3. 156.
C. coccinea, var. *typica.* Regel, Rev. Crat. 121.

Var. **oligandra.** Torr. & Gray, Fl. 1. 465.

C. cordata. Ait. Hort. Kew. 2. 168. Willd. Spec. 2. 1000. Persoon, 2. 36. Elliott, 1. 554. Torrey, Fl. U. S. 474. DC. Prodr. 2. 628. Watson, Dendr. Brit. **t. 63.** Lindl. Bot. Reg. 14, **t. 1151.** Hook. Fl. Bor.-Am. 1. 201. Don, Mill. 2. 599. Beck, Bot. 112. Darling. Fl. Cestr. 293. Torr. & Gray, Fl. 1. 467. Eat. & Wr. 211. Dietr. 3. 160. Loud. Arb. 2. 825, **t. 137.** Richard. Arct. Exped. 427. Curtis, Bot. N. Car. 82. Chapman, 127. Gray, Manual, 159. Regel, l. c. 114.

Mespilus Phœnopyrum. Ehrh.; Linn. f. Suppl. 254. Ehrh. Beitr. 1. 181 & 2. 67. Moench, Meth. 685. Poir. in Lam. Dict. 4. 446.

C. populifolia. Walter, 147. Pursh, 337.

Mespilus acerifolia. Burgsd.; Lam. Dict. 4. 442. Nouv. Duham. 4. 151. Spach, Hist. Veg. 2. 65.

Mespilus cordata. Willd. Enum. 1. 523. Spreng. Syst. 2. 507.

Phœnopyrum cordatum & acerifolium. Roem. Syn. Monog. 3. 157.

C. Crus-galli. Linn. Spec. 476. Medicus, Bot. Beob. 2. 344. Walter, 147. Ait. Hort. Kew. 2. 170. Willd. Spec. 2. 1004. Michx. Fl. 1. 288. Persoon, 2. 37. Pursh, 338. Bigel. Fl. Bost. 194. Elliott, 1. 548. Torrey, Fl. U. S. 476; Fl. N. Y. 1. 221. Watson, Dendr. Brit. **t. 56.** DC. Prodr. 2. 626. Hook. Fl. Bor.-Am. 1. 200; Comp. Bot. Mag. 1. 25. Don, Mill. 2. 598. Beck, Bot. 111. Darling. Fl. Cestr. 290. Torr. & Gray, Fl. 1. 464. Eat. & Wr. 212. Dietr. 3. 158. Loud. Arb. 2. 820, **t. 126, 127, & f. 574, 575.** Emerson, Trees of Mass. 433, & 2 ed. 2. 492, **t.** Roem. Syn. Monog. 3. 117. Curtis, Bot. N. Car. 83. Lesqx. Fl. Ark. 359. Chapman, 127. Gray, Manual, 160; Hall's Pl. Texas, 9. Regel, Rev. Crat. 108.

C. lucida. DuRoi, Obs. Bot. 13. Wangenh. Amer. 53, **t. 17, f. 42.** Spreng. Syst. 2. 506. DC. Prodr. 2. 629. Don, Mill. 2. 599. Eat. & Wr. 212.

Mespilus Crus-galli. Marsh. Arbust. 88. Poir. in Lam. Dict. 4. 441. Nouv. Duham. 4. 149. Willd. Enum. 522.

? *Mespilus cuneiformis.* Marsh. Arbust. 88.

Mespilus lucida. Ehrh. Beitr. 4. 17. Moench, Meth. 685. Spach, Hist. 2. 57.

Mespilus cuneifolia. Moench, Meth. 684.

Mespilus Watsoniana. Spach, Hist. Veg. 2. 57.

C. Watsoniana. Roem. Syn. Monog. 3. 117.

Var. **pyracanthifolia.** Ait. Hort. Kew. 2. 170. DC. Prodr. 2. 626. Torr. & Gray, Fl. 1. 464. Loud. Arb. 2. 820, **t. 128, & f. 580.** Regel, l. c. 109, in part.

C. salicifolia. Medicus, Bot. Beob. 2. 345. Roem. Syn. Monog. 3. 117.

C. Crus-galli, var. *salicifolia.* Ait. l. c. DC. Prodr. 2. 626. Loud. Arb. 2. 280, **t. 129, & f. 551–553, 578.** Regel, Rev. Crat. 110.

Mespilus salicifolia. Koch, Dendr. 144.

C. Coursetiana. Roem. Syn. Monog. 3. 117.

Var. **ovalifolia.** Lindl. Bot. Reg. 22, **t. 1860.** Torr. & Gray, Fl. 1. 464. Dietr. 3. 159. Loud. Arb. 2. 821, **t. 130 & f. 579.** Regel, Rev. Crat. 109.

Mespilus ovalifolia. Hornem. Hort. Hafn. Suppl. 52.

Mespilus prunellifolia. Poir. Suppl. 4. 72.

C. ovalifolia & prunellifolia. DC. Prodr. 2. 627. Don, Mill. 2. 598. Roem. Syn. Monog. 3. 117.

Mespilus elliptica. Guimp. Otto & Hayne, **t. 144.** Spach, Hist. Veg. 2. 68.

Var. **linearis.** DC. Prodr. 2. 626. Torr. & Gray, Fl. 1. 464. Dietr. 3. 159. Loud. Arb. 2. 821, **f. 577.** Regel, Rev. Crat. 110.

Mespilus lucida, var. *angustifolia.* Ehrh. Beitr. 4. 18.

C. linearis. Persoon, 2. 37. Roem. Syn. Monog. 3. 118.

Mespilus linearis. Desf. Arb. 2. 156. Poir. Suppl. 4. 70. Spach, Hist. 2. 57.

Var. **prunifolia**. Torr. & Gray, Fl. 1. 464. Dietr. 3. 159. Loud. Arb. 2. 821, **t. 131** & **f. 576**. Regel, Rev. Crat. 110.

Mespilus prunifolia. Marsh. Arbust. 90 ? Poir. in Lam. Dict. 4. 443. Nouv. Duham. 4. 150, **t. 40**. Spreng. Syst. 2. 506.

Mespilus rotundifolia. Ehrh. Beitr. 3. 20.

C. prunifolia. Persoon, 2. 37. Bosc.; DC. Prodr. 2. 627. Don, Mill. 2. 598. Lindl. Bot. Reg. 22, **t. 1868**. Eat. & Wr. 212. Roem. Syn. Monog. 3. 118.

Mespilus Bosciana. Spach, Hist. Veg. 2. 58.

C. Bosciana. Roem. Syn. Monog. 3, 119.

C. Douglasii. Lindl. Bot. Reg. 21, **t. 1810**. Loud. Arb. 3. 823, **t. 134**, & **f. 584**. Brew. & Wats. Bot. Calif. 1. 189.

? *C. glandulosa*. Pursh, 337, in part.

C. punctata, var. *brevispina*. Dougl.; Hook. Fl. Bor.-Am. 1. 201. Loud. l. c.

C. sanguinea, var. *Douglasii*. Torr. & Gray, Fl. 1. 464. Walp. Rep. 2. 58. Dietr. 3. 160. Nutt. Sylva, 2. 6, **t. 44**. Coulter, Hayd. Rep. 1872, 765. Torrey, Bot. Wilkes, 292. Regel, Rev. Crat. 116.

Anthomeles Douglasii. Roem. Syn. Monog. 3. 140.

C. sanguinea. Cooper, Am. Naturalist, 3. 407.

C. flava. Ait. Hort. Kew. 2. 169. Willd. Spec. 2. 1002. Persoon, 2. 37. Pursh, 338. DC. Prodr. 2. 628. Watson, Dendr. Brit. **t. 59**. Don, Mill. 2. 600. Lindl. Bot. Reg. 23, **t. 1939**. Torr. & Gray, Fl. 1. 468. Eat. & Wr. 211. Dietr. 3. 160. Loud. Arb. 2. 823, **t. 135**, & **f. 585**. Curtis, Bot. N. Car. 83. Lesqx. Fl. Ark. 359. Chapman, 128. Gray, Manual, 160. Regel, Rev. Crat. 122.

C. glandulosa. Ait. l. c. 168. Persoon, 2. 37. Poir. Suppl. 4. 69, in part.

Mespilus Caroliniana. Poir. in Lam. Dict, 4. 442. Elliott, 1. 554. Spreng. Syst. 2. 507.

C. Caroliniana. Persoon, 2. 36. Elliott, 1. 554. Eat. & Wr. 212.

Mespilus flava. Willd. Enum. 523. Poir. Suppl. 4. 70. Watson, Dendr. Brit. **t. 59**. Spach, Hist. Veg. 2. 59.

C. turbinata. Pursh, 725. Poir. Suppl. 5. 543. Elliott, 1. 549. DC. Prodr. 2. 627. Don, Mill. 2. 599. Eat. & Wr. 212.

Mespilus turbinata. Spreng. Syst. 2. 506. Spach, Hist. Veg. 2. 66.

C. flava, var. *lobata*. Lindl. Bot. Reg. **t. 1932**.

C. lobata. Bosc.; DC. Prodr. 2. 628. Don, Mill. 2. 599. Loud. Arb. 2. 824, **f. 554, 586**.

Phœnopyrum Carolinianum. Roem. Syn. Monog. 3. 152.

Anthomeles flava, glandulosa & turbinata. Roem. l. c. 3. 141.

Mespilus flexispina. Koch, Dendr. 1. 139.

Var. **pubescens**. Gray, Manual, 160.

Mespilus hiemalis. Walter, 148. Lam. Dict. 4. 447.

C. viridis. Walter, 147. Elliott, 1. 551.

C. elliptica. Ait. Hort. Kew. 2. 168. Willd. Spec. 2. 1002. Persoon, 2. 37. Pursh, 337. Torrey, Fl. U. S. 475. DC. Prodr. 2. 627. Hook. Fl. Bor.-Am. 1. 201. Don, Mill. 2. 598. Beck, Bot. 33. Torr. & Gray, Fl. 1. 469. Eat. & Wr. 211. Dietr. 3. 159. Regel, Rev. Crat. 122.

Mespilus elliptica. Lam. l. c. Wenzig, Linnæa, 38. 125. Koch, Dendr. 1. 140.

C. glandulosa. Michx. Fl. 1. 288. Chapman, 128.

C. Michauxii. Persoon, 2. 38.

C. spathulata. Pursh, 336. DC. Prodr. 2. 627. Lindl. Bot. Reg. 22, **t. 1890**, & 23, under t. 1957.

Mespilus Michauxii. Hornem. Hort. Hafn. 455. Poir. Suppl. 4. 69.

C. flava. Elliott, 1. 551.

C. Virginica. Lodd.; Loud. Arb. 2. 842, **f. 560, 615.**

Phœnopyrum ellipticum & Virginicum. Roem. Syn. Monog. 3. 155.

C. OXYACANTHA, Linn. Beck, Bot. 112. Darling. Fl. Cestr. 294. Torr. & Gray, Fl. 1. 463. Eat. & Wr. 212. Torrey, Fl. N. Y. 1. 221. Gray, Manual, 159.

C. parvifolia. Ait. Hort. Kew. 2. 169. Willd. Arb. 85; Spec. 2. 1002. Pursh, 338. Elliott, 1. 547. Torrey, Fl. U. S. 475. DC. Prodr. 2. 627. Don, Mill. 2. 598. Beck, Bot. 111. Hook. Comp. Bot. Mag. 1. 25. Darling. Fl. Cestr. 291. Torr. & Gray, Fl. 1. 469. Eat. & Wr. 211. Dietr. 3. 159. Loud. Arb. 2. 841, **f. 557–559, 614–616.** Curtis, Bot. N. Car. 84. Chapman, 128. Gray, Manual, 160.

C. uniflora. Muench. Hausv. 5. 147. DuRoi, Harbk. 184.

Mespilus flexispina. Moench, Hort. Weiss. 62, **t. 4**; Meth. 685. Wenzig, Linnæa, 38. 127.

Mespilus xanthocarpa. Ehrh.; Linn. f. Suppl. 254. Ehrh. Beitr. 1. 182 & 2. 67. Poir. Suppl. 4. 67. Spreng. Syst. 2. 506.

Mespilus Oxyacantha aurea. Marsh. Arbust. 89.

Mespilus laciniata. Walter, 147. Lam. Dict. 4. 447.

C. tomentosa. Michx. Fl. 1. 289. Regel, Rev. Crat. 122, mostly.

Mespilus parvifolia. Willd. Enum. 523. Spach, Hist. Veg. 2. 55.

Mespilus axillaris. Persoon, 2. 39.

? *C. unilateralis.* Persoon, 2. 37. DC. Prodr. 2. 629. Don, Mill. 2. 598. Roem. Syn. Monog. 3. 116.

Mespilus tomentosa. Poir. in Nouv. Duham. 4. 153.

Mespilus unilateralis. Poir. Suppl. 4. 73.

Mespilus flexuosa. Poir. Suppl. 4. 73. DC. Prodr. 2. 627. Don, Mill. 2. 598.

Anthomeles flexispina. Roem. Syn. Monog. 3. 142.

Phœnopyrum uniflorum & parvifolium. Roem. Syn. Monog. 3. 152 & 153.

Mespilus uniflora. Wenzig, Linnæa, 38. 123.

C. PYRACANTHA, Pers. Gray, Manual, 159.

C. rivularis. Nutt.; Torr. & Gray, Fl. 1. 464. Dietr. 3. 161. Walp. Rep. 2. 58. Nutt. Sylva, 2. 9. Cooper, Am. Naturalist, 3. 407. Regel, Rev. Crat. 107. Watson. King's Rep. 5. 92 ? Porter, Hayd. Rep. 1871, 482 ? Coulter, same, 1872, 765 ? Brandegee, Fl. S. W. Colorado, 236 ? Brew. & Wats. Bot. Calif. 1. 189.

C. —— ? Durand, Fl. Utah, 164.

C. spathulata. Michx. Fl. 1. 288. Persoon, 2. 37. Barton, Comp. Fl. Philad. 1. 226. Elliott, 1. 552. Lodd. Bot. Cab. **t. 1261.** Don, Mill. 2. 599. Hook. Comp. Bot. Mag. 1. 25. Gray, in Lindl. Bot. Reg. under t. 1957; Manual, 159; Hall's Pl. Texas, 9. Torr. & Gray, Fl. 1. 467. Eat. & Wr. 212. Dietr. 3. 160. Loud. Arb. 2. 825, **t. 138** & **f. 591.** Curtis, Bot. N. Car. 83. Chapman, 126. Ridgway, Am. Naturalist, 6. 728.

Mespilus Azarolus. Marsh. Arbust. 89.

Mespilus spathulata. Poir. Suppl. 4. 68. Spreng. Syst. 2. 507. Spach, Hist. Veg. 2. 66. Koch, Dendr. 1. 137.

C. microcarpa. Lindl. Bot. Reg. 22, **t. 1846.**

Phœnopyrum spathulatum. Roem. Syn. Monog. 3. 355.

C. subvillosa. Schrader, Ind. Sem. h. Gœtt. Torrey, Pac. R. Rep. 4. 85.

C. coccinea, var. (?) *mollis.* Torr. & Gray, Fl. 1. 465. Gray, Pl. Lindh. 186. Parry, Pl. Minn. 612. Regel, Rev. Crat. 121.

Phœnopyrum subvillosum. Roem. Syn. Monog. 3. 154.

C. mollis. Scheele, Linnæa, 21. 569. Walp. Ann. 2. 523.

C. sanguinea, var. *villosa.* Rupr. & Maxim. Prim. Fl. Amur. 101.

C. Texana. Buckley, Proc. Acad. Philad. 1861, 454; fide Gray, same, 1862, Young, Fl. Texas, 258.

C. tomentosa, var. *mollis.* Gray, Manual, 160.

Mespilus tiliæfolia. Koch, Dendr. 1. 151.

C. tomentosa. Linn. Spec. 476, excl. syn. Gronov. DuRoi, Harbk. 1. 183. T & Gray, Fl. 1. 466. Dietr. 3. 160. Torrey, Fl. N. Y. 1. 222. Emerson, Tree Mass. 1. 435 & 2 ed. 2. 494, t. Parry, Pl. Minn. 612. Engelm. Pl. Upp. Miss. Lesqx. Fl. Ark. 359. Curtis, Bot. N. Car. 83. Chapman, 127. Pl. Bourgeau, Gray, Manual, 160.

C. leucophæos. Moench, Hort. Weiss. 31, t. 2. Regel, Rev. Crat. 106.

Mespilus Calpodendron. Ehrh. Beitr. 2. 67.

Mespilus latifolia. Poir. in Lam. Dict. 4. 444; Nouv. Duham. 4. 150. Sp Hist. Veg. 2. 60.

C. latifolia. Persoon, 2. 36. Don, Mill. 2. 598. Eat. & Wr. 212. Roem. l. c.

Mespilus lobata. Poir. Suppl. 4. 71.

Mespilus odorata & pruinosa. Wendl. in Regensb. Flora, 1823, 700.

C. lobata. Bosc.; DC. Prodr. 2. 628.

C. flava. Hook. Fl. 1. 202, excl. syn.? Darling. Fl. Cestr. 292.

Halmia tomentosa & lobata & Phœnopyrum pruinosum. Roem. l. c. 3. 135 & 155.

Var. **pyrifolia.** Gray, Manual, 160.

C. pyrifolia. Ait. Hort. Kew. 2. 168. Willd. Spec. 2. 1001. Persoon, 2 Nouv. Duham. 4. 131. Poir. Suppl. 1. 292. Pursh, 337. Elliott, 1. 550. Tor Fl. U. S. 475. DC. Prodr. 2. 627. Hook. Fl. Bor.-Am. 1. 201. Don, Mill. 2. Lindl. Bot. Reg. 22, t. 1877. Eat. & Wr. 211. Loud. Arb. 2. 819, t. 124 & f. !

Mespilus pyrifolia. Willd. Enum. 523. Spreng. Syst. 2. 507. Spach, l. c.

Var. **punctata.** Gray, Manual, 2 ed. 124. Chapman, 127. Porter, Hayd. 1871, 481 ?

C. punctata. Jacq. Hort. Vindob. 1. 10, t. 28. Ait. Hort. Kew. 2. 169. W Spec. 2. 1004. Michx. Fl. 1. 289. Persoon, 1. 37. Pursh, 338. Elliott, 1. Torrey, Fl. U. S. 476; Fl. N. Y. 1. 222. DC. Prodr. 2. 627. Hook. Fl. Bor.- 1. 201, excl. var.; Comp. Bot. Mag. 1. 25. Don, Mill. 2. 598. Beck, Bot. Darling. Fl. Cestr. 291. Torr. & Gray, Fl. 1. 466. Eat. & Wr. 211. Dietr. 3. Loud. Arb. 2. 818, t. 123, & f. 569, 570. Emerson, Trees of Mass. 435 & 2. 2. 495. Gray, Manual, 1 ed. 128. Engelm. Pl. Upp. Miss. 191. Richard. A Exped. 427. Lesqx. Fl. Ark. 359. Wood, Bot. & Fl. 111.

Mespilus cornifolia. Muench. Hausv. 5. 145. Poir. in Lam. Dict. 4. 444. K Dendr. 1. 134.

C. Crus-galli. Wangenh. Amer. 52. DuRoi, Harbk. 1. 195.

Mespilus cuneifolia. Ehrh. Beitr. 3. 21. Spreng. Syst. 2. 506. Spach, l. c.

Mespilus punctata. Nouv. Duham. 4. 152. Willd. Enum. 524. Poir. Su 4. 70. Watson, Dendr. Brit. t. 57. Spach, l. c. 61. Wenzig, Linnæa, 38. 128.

Mespilus pyrifolia. Desf. Hist. Arb. 2. 155.

C. latifolia. DC. Prodr. 2. 627.

? *C. flexuosa.* Schweinitz, Long's Exped. 2, Appx. 112.

C. cuneifolia & obovatifolia. Roem. Syn. Monog. 3. 118 & 120.

Halmia punctata & cornifolia. Roem. l. c. 3. 134.

C. tomentosa, var. *plicata.* Wood, Cl.-Book, 330.

C. arbutifolia; Heteromeles arbutifolia.
Bosciana; Crus-galli.
Caroliniana; flava.
coccinea; subvillosa.
Coursetiana; Crus-galli.
Crus-galli; arborescens, coccinea, tomentosa.
cuneifolia; tomentosa.
elliptica; æstivalis, flava.
flava & flexuosa; tomentosa.
glandulosa; coccinea, Douglasii, flava.
latifolia & leucophæos; tomentosa.
linearis; Crus-galli.
lobata; flava, tomentosa.
lucida; æstivalis, Crus-galli.
macracantha; coccinea.
Michauxii; flava.
microcarpa; spathulata.
mollis; subvillosa.
oboratifolia; tomentosa.
opaca; æstivalis.
C. ovalifolia; Crus-galli.
Oxyacantha; apiifolia.
populifolia; coccinea, cordata.
prunifolia; Crus-galli.
punctata; Douglasii, tomentosa.
pyrifolia; tomentosa, Pyrus arbutifolia.
racemosa; Amelanchier Canadensis.
salicifolia; Crus-galli.
sanguinea; Douglasii, subvillosa.
serrulata; Pyrus arbutifolia.
spathulata; flava.
spicata; Amelanchier Canadensis.
Texana; subvillosa.
tomentosa; parvifolia, subvillosa, Amelanchier Canadensis.
turbinata; flava.
uniflora & unilateralis; parvifolia.
Virginica; flava.
viridis; coccinea, flava.
Watsoniana; Crus-galli.
——— ? rivularis.

DRYAS octopetala. Linn. Spec. 501. See syn. in Ledeb. Fl. Ross. 2. 20; Middend. Fl. Taimyr. 47; Regel. & Tiling, Fl. Ajan, 81; Pritzel, Icon. Bot. 83. — Pursh, 350. Schrank, Pfl. Lab. 28. James, Cat. 182. DC. Prodr. 2. 549. Torrey, Ann. Lyc. N. Y. 2. 195. Hook. Fl. Bor.-Am. 1. 174. Meyer, Pl. Lab. 77. Spach, Hist. Veg. 1. 477. Hook. & Arn. Bot. Beechey, 123. Torr. & Gray, Fl. 1. 420. Eat. & Wr. 230. Babington, Ann. & Mag. Nat. Hist. 10, 181, **t. 7**. Seem. Bot. Herald, 29. Durand, Journ. Acad. Philad. 1856, 189 (Kane's Exped. 2. 452); Proc. Acad. Philad. 1863, 94. Hook. f. Journ. Linn. Soc. 1. 116 & 124; Arct. Pl. 289 & 325. Dickie, Journ. Linn. Soc. 3. 111. Regel, Gart. Fl. 9, **t. 286**. Gray, Am. Journ. Sci. 2. 33. 411; Proc. Acad. Philad. 1863, 61. Rothr. Fl. Alask. 445; Pl. Wheeler, 37. Watson, King's Rep. 5. 84. Coulter, Hayd. Rep. 1872, 765. Porter, Fl. Col. 34.

D. chamædrifolia. Persoon, 2. 57.

Var. **integrifolia.** Cham. & Schlecht. in Linnæa, 2. 3. Hook. f. in Journ. Linn. Soc. 5. 83. Dickie, same, 11. 33.

D. integrifolia. Vahl, Act. Hafn. 4. 177; Fl. Dan. **t. 1216**. Persoon, 2. 57. R. Brown, Ross Voy. 142; Parry's 1st Voy. 276 (Regensb. Flora, 1824, Beil. 85). Greville, Mem. Soc. Wern. 3. 429. Goldie, Edinb. Phil. Journ. 6. 329. Torrey, Fl. U. S. 492. Spreng. Syst. 2. 527. DC. Prodr. 2. 549. Hook. Exot. Fl. **t. 220**; Fl. Bor.-Am. 1. 174. Don, Mill. 2. 525. Beck, Bot. 100. Schlecht. Fl. Lab. in Linnæa, 10. 98. Hook. & Arn. Bot. Beechey, 123. Torr. & Gray, Fl. 1. 420. Bigelow, Fl. Bost. 3 ed. 219. Eat. & Wr. 230. Dietr. 3. 193. Ledeb. Fl. Ross. 2. 20. Seem. Bot. Herald, 29, 52 & 55. Durand, Journ. Acad. Philad. 1856, 190 (Kane's Exped. 2. 453); Proc. Acad. Philad. 1863, 94. Lange, Pl. Groenl. 134. Hook. f. Journ. Linn. Soc. 1. 116, 121 & 124. Dickie, same, 3. 111. Gray, Manual, 151.

D. tenella. Pursh, 350. Poir. Suppl. 5. 661. Don, Mill. 525.

Var. **Drummondii.**

D. chamædrifolia. Richard. Frankl. Journ. 12.

D. Drummondii. Hook. Bot. Mag. **t. 2972**; Fl. Bor.-Am. 1. 174. Don, I 2. 525. Spach, Hist. Veg. 1. 478. Torr. & Gray, Fl. 1. 420. Eat. & Wr. Dietr. 3. 193. Walp. Rep. 2. 49. Ledeb. Fl. Ross. 2. 20. Hook. f. Arct. Pl. Pl. Bourgeau, 256. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 322.

FALLUGIA paradoxa. Endlicher, Gen. Pl. 1246. Torrey, Emory's Rep. **t. 2**; Sitgr. Rep. 159; Pac. R. Rep. 4. 4 & 84; Mex. Bound. 64. Engelm. in Wi Rep. 6. Gray, Pl. Fendl. 41; Pl. Wright. 1. 68 & 2. 55. Torr. & Gray, Pa Rep. 2. 164. Porter, Fl. Col. 35. Rothr. Pl. Wheeler, 37. Brew. & Wats. Calif. 1. 175.

Sieversia paradoxa. D. Don, Trans. Linn. Soc. 14. 575, **t. 22, f. 7–10.** Spr Syst. 4, Appx. 199. Don, Mill. 2. 528, **f. 70.** Dietr. 3. 193. Nutt. Pl. Gam Journ. Acad. Philad. 1. 181.

Geum (?) *cercocarpoides.* Moç. & Sesse, Icon. Fl. Mex. ined. **t. 296.** DC. P 2. 554. Fisch. & Mey. Ind. Sem. Petrop. 11, Suppl. 54.

F. Mexicana. Walp. Rep. 2. 46.

FRAGARIA Californica. Cham. & Schlecht. in Linnæa, 2. 30. Hook. & Bot. Beechey, 140. Brew. & Wats. Bot. Calif. 1. 177.

F. vesca, var. γ. Torr. & Gray, Fl. 1. 448, in part.

F. vesca. Benth. Pl. Hartw. 309. Seem. Bot. Herald, 282.

F. lucida. Vilmorin; Gay, Ann. Sci. Nat. 4. 8. 201. Gard. Chronicle, 877. Decaisne, Jard. Fruit. Mus. Frag. 51, t.

F. Chilensis. Duchesne, Lam. Dict. 2. 537. Ehrhart, Beitr. 7. 24. Willd. 2. 1091. Seringe, DC. Prodr. 2. 571. Cham. & Schlecht. in Linnæa, 2. 20. Fl. Bor.-Am. 1. 185. Don, Mill. 2. 545. Hook. & Arn. Bot. Beechey, 140. & Gray, Fl. 1. 448. Eat. & Wr. 246. Dietr. 3. 177. Benth. Bot. Sulph. 14. Fl. Chil. 2. 305. Torrey, Pac. R. Rep. 4. 85; Mex. Bound. 64; Bot. Wilkes Newberry, Pac. R. Rep. 6. 73. J. Gay, Ann. Sci. Nat. 4. 8. 200. Cooper, 12. 23 & 60. Boland. Cat. 11. Decaisne, l. c. 52, t. Brew. & Wats. Bot. 1. 177.

F. vesca, var. *Chiloensis.* Linn. Spec. 495.

Var. **Scouleri.** Hook. Fl. Bor.-Am. 1. 185.

F. Chilensis, var. β., and γ. in part. Torr. & Gray, Fl. 1. 448.

F. Californica. Newberry, Pac. R. Rep. 6. 73.

F. INDICA, Andr. Gray, Manual, 156.

Potentilla Durandii. Torr. & Gray, Fl. 1. 444. Dietr. 3. 181. Walp. 2. 34.

F. vesca. Linn. Spec. 494, excl. var. See J. Gay, Ann. Sci. Nat. 4. 8. 1 Raf. Med. Bot. 1. 189, **f. 38.** Hook. Fl. Bor.-Am. 1. 184. Don, Mill. 2. 542. Bot. 105. Torr. & Gray, Fl. 1. 448. Torrey, Fl. N. Y. 1. 212; Pac. R. Rep. Mex. Bound. 64; Bot. Wilkes, 290. Gray, Pl. Fendl. 42; Pac. R. Rep. 1 Manual, 156. Engelm. Pl. Upp. Miss. 191. Seem. Bot. Herald, 282. Vil Jard. Fruit. Mus. 1, t. Cooper, Pac. R. Rep. 12. 60. Hook. f. Arct. Pl. 290 Boland. Cat. 11. Watson, King's Rep. 5. 85. Brown, Torr. Bot. Bull. Coulter, Hayd. Rep. 1872, 765. Porter, Fl. Col. 35. Decaisne, Jard. Fruit. Frag. 27, t. Brew. & Wats. Bot. Calif. 1. 177.

F. Virginiana. Duchesne, Lam. Dict. 2. 539. Ehrh. Beitr. 7. 24. Willd. 2. 1091. Persoon, 2. 53. Ait. f. Hort. Kew. 3. 272. Pursh, 357. Bigelo Bost. 202. Elliott, 1. 575. Torrey, Fl. U. S. 500; Fl. N. Y. 1. 211; Nicol. 149; Emory's Rep. 408. Spreng. Syst. 2. 533. Seringe, DC. Prodr. 2. 570. Fl. Bor.-Am. 1. 184; Comp. Bot. Mag. 1. 35; Lond. Journ. Bot. 6. 219. Don,

2. 543. Beck, Bot. 105. Spach, Hist. Veg. 1. 466. Darling. Fl. Cestr. 304. Torr. & Gray, Fl. 1. 448. Eat. & Wr. 246. Dietr. 3. 177. Gray, Pl. Fendl. 42; Manual, 155. Parry, Pl. Minn. 612. Engelm. Pl. Upp. Miss. 191. Seem. Bot. Herald, 52. Vilmorin, Jard. Fruit. Mus. Frag. 3, t. Cooper, Pac. R. Rep. 12. 59. J. Gay, Ann. Sci. Nat. 4. 8. 201. Chapman, 124. Pl. Bourgeau, 256 & 262. Anderson, Cat. Pl. Nev. 120. Coulter, Hayd. Rep. 1872, 765. Rothr. Pl. Wheeler, 37. Decaisne, l. c. 43, t. Brew. & Wats. Bot. Calif. 1. 177.

F. vesca. Walter, 150.

? *F. Caroliniana.* Duchesne, Lam. Dict. 2. 539.

F. vesca, var. *Virginiana.* Ait. Hort. Kew. 2. 211.

F. Canadensis. Michx. Fl. 1. 299. Elliott, 1. 575. Richard. Frankl. Journ. 11. Spreng. Syst. 2. 533. Seringe, DC. Prodr. 2. 571. Hook. Fl. Bor.-Am. 1. 185. Don, Mill. 2. 546. Beck, Bot. 105. Eat. & Wr. 246. Presl, Epimel. Bot. 198.

Var. **Illinoensis.** Gray, Manual, 155. Porter, Fl. Col. 35. Brew. & Wats. Bot. Calif. 1. 177.

? *F. elatior.* Eaton, Manual, 1818, 249. Nees, Pl. Neuwied, 8.

F. Illinoensis & Iowensis. Prince.

F. Grayana. Vilmorin; J. Gay, Ann. Sci. Nat. 4. 8. 202. Decaisne, l. c. 47, t.

Var. **glauca.** Watson, King's Rep. 5. 85; Pl. Wheeler, 8.

GEUM album. Gmel. Syst. 2. 861. Willd. Enum. 1. 556. Pursh, 351. Poir. Suppl. 5. 574. Elliott, 1. 572. James, Long's Exped. 1. 317. Torrey, Fl. U. S. 493. Bigel. Fl. Bost. 2 ed. 207. Tratt. Ros. Monog. 3. 117. Spreng. Syst. 2. 542. Seringe, DC. Prodr. 2. 550. Don, Mill. 2. 526. Beck, Bot. 101. Hook. Comp. Bot. Mag. 1. 24. Fisch. & Meyer, Ind. Sem. Petrop. 3. 34 (Litt.-Ber. zu Linnæa, 12. 93). Eat. & Wr. 254. Meyer, Ind. Sem. Petrop. 11. 30. Engelm. Pl. Upp. Miss. 190. Chapman, 123. Gray, Manual, 152; Am. Journ. Sci. 3. 3. 306. Scheutz, Prod. Monog. Georum in Acta Soc. Upsal. 3. 7. 23.

G. Canadense. Jacq. Hort. Vind. 2. 82, t. **175**, not Murr.

G. Carolinianum. Walter, 150. Seringe, DC. Prodr. 2. 554.

Caryophyllata alba. Moench, Meth. 660.

G. Virginianum. Murr. Comm. Gœtt. 5. 30, t. 3. Hook. Fl. Bor.-Am. 1. 175. Torr. & Gray, Fl. 1. 421. Eat. & Wr. 254. Dietr. 3. 491. Torrey, Fl. N. Y. 1. 202. Gray, Manual, 1 ed. 120, in part. Wood, Cl.-Book, 338, in part.

Sieversia Caroliniana. Don, Mill. 2. 528.

? *G. agrimonoides.* Meyer, Ind. Sem. Petrop. 11. 28, not Pursh. Scheutz, Monog. 32; fide Gray, Am. Journ. Sci. 3. 3. 307.

G. urbanum. Gray, Manual, 4 ed. xcii.

G. anemonoides. Willd. Spec. 2. 1117. See syn. in Ledeb. Fl. Ross. 2. 24 (under *Sieversia*); Regel & Tiling, Fl. Ajan. 82; Scheutz, Monog. 54. — Persoon, 2. 57. Pursh, 352. Tratt. Ros. Monog. 3. 138. Seringe, DC. Prodr. 2. 553. Torr. & Gray, Fl. 1. 423. Engelm. Pl. Upp. Miss. 190 ?

Sieversia anemonoides. Willd. in Berl. Mag. 3. 398. Spreng. Syst. 2. 543. Hook. Fl. 1. 176. Eat. & Wr 426.

G. calthifolium. Menzies; Smith in Rees Cyc. 5. 16. Seringe, DC. Prodr. 2. 552. Don, Mill. 2. 527. Torr. & Gray, Fl. 1. 425. Walp. Rep. 2. 48. Rothr. Fl. Alask. 445. Scheutz, Monog. 58.

G. radiatum. Pursh, 352, not Michx.

Sieversia dilatata. R. Br. in Parry's 1st Voy. 276.

Sieversia radiata. Hook. Fl. Bor.-Am. 1. 177, not Br. Don, Mill. 2. 528.

Sieversia calthifolia. D. Don.; Dietr. 3. 193. Meyer, Ind. Sem. Petrop. 11. 54.

Var. **rotundifolium.** Torr. & Gray, Fl. 1. 425. Walp. Rep. 2. 48.

G. rotundifolium. Langsd.; Fisch. in Mem. Soc. Mosc. 2. 187, t. **11**, f. **17**. Seringe, DC. Prodr. 2. 552. Tratt. Ros. Monog. 3. 131. Considered distinct by Scheutz, Monog. 57, including the following variety.

Sieversia rotundifolia. Cham. & Schlecht. in Linnæa, 2. 4. Bongard, Veg. Sitch. 132. Ledeb. Fl. Ross. 2. 24.

Var. **congestum.** Torr. & Gray, Fl. 1. 425. Walp. l. c.

Sieversia congesta. R. Br. in Parry's 1st Voy. 276.

G. geniculatum. Michx. Fl. 1. 300. Persoon, 2. 57. Poir. Suppl. 1. 617. Pursh, 351. Tratt. Ros. Monog. 3. 143. Seringe, DC. Prodr. 2. 554. Beck, Bot. 101. Torr. & Gray, Fl. 1. 422. Eat. & Wr. 254. Dietr. 3. 192. Gray, Am. Journ. Sci. 1. 42. 35 (Lond. Journ. Bot. 2. 119); same, 3. 3. 307. Meyer, Ind. Sem. Petrop. 11. 54. Chapman, 123. Scheutz, Monog. 39.

G. Virginianum. Spreng. Syst. 2. 542.

G. glaciale. Fisch. in Mem. Soc. Mosc. 2. 187, t. **11**, f. **20**. Adams, same, 5. 98. Seringe, DC. Prodr. 2. 553. Torr. & Gray, Fl. 1. 423. Seem. Bot. Herald, 29. Rothr. Fl. Alask. 445. Scheutz, Monog. 52.

Sieversia glacialis. R. Br. in Parry's 1st Voy. 276. Cham. & Schlecht. in Linnæa, 2. 5. Spreng. Syst. 2. 543. Hook. Fl. Bor.-Am. 1. 176. Hook. & Arn. Bot. Beechey, 123. Eat. & Wr. 426. Ledeb. Fl. Ross. 2. 25. Hook. f. Arct. Pl. 289.

G. macrophyllum. Willd. Enum. 1. 557. Spreng. Syst. 2. 542. Seringe, DC. Prodr. 2. 550. Cham. & Schlecht. in Linnæa, 2. 4. Bongard, Veg. Sitch. 132. Don, Mill. 2. 525. Fisch. & Meyer, Ind. Sem. Petrop. 3. 35 (Litt.-Ber. zu Linnæa, 12. 95). Torr. & Gray, Fl. 1. 421. Ledeb. Fl. Ross. 2. 23. Dietr. 3. 191. Meyer, Ind. Sem. Petrop. 11. 25. Hook. in Lond. Journ. Bot. 6. 218. Gray, Pl. Fendl. 40; Manual, 152; Proc. Am. Acad. 8. 381; Am. Journ. Sci. 3. 3. 306. Presl, Epimel. Bot. 196. Newberry, Pac. R. Rep. 6. 71. Cooper, same, 12. 59. Rothr. Fl. Alask. 445; Pl. Wheeler, 37. Matthew, Fl. Acad. 15. Watson, King's Rep. 5. 84; Pl. Wheeler, 8. Coulter, Hayd. Rep. 1872, 765. Porter, Fl. Col. 35. Torrey, Bot. Wilkes, 287. Brew. & Wats. Bot. Calif. 1. 176. Referred to *G. Japonicum* by Scheutz, Monog. 31.

G. strictum, var. *β.* Hook. Fl. Bor.-Am. 1. 175.

G. radiatum. Michx. Fl. 1. 300. Poir. Suppl. 1. 617. Pursh, 532. Elliott, 1. 573. Seringe, DC. Prodr. 2. 554. Torr. & Gray, Fl. 1. 424. Eat. & Wr. 254. Chapman, 123. Gray, Manual, 153. Scheutz, Monog. 55.

Sieversia radiata. R. Br. in Parry's 1st Voy. 276. Eat. & Wr. 414. Dietr. 3. 193. Meyer, Ind. Sem. Petrop. 11. 54.

Var. **Peckii.** Gray, Manual, 153.

G. Peckii. Pursh, 352. Poir. Suppl. 5. 574. Nutt. Genera, 1. 309. Bigel. Fl. Bost. 2 ed. 208. Torrey, Fl. U. S. 494. Spreng. Syst. 2. 543. Seringe, DC. Prodr. 2. 554. Beck, Bot. 101. Torr. & Gray, Fl. 1. 424. Eat. & Wr. 254. Gray, Manual, 1 ed. 121. Wood, Cl.-Book, 338. Scheutz, Monog. 56.

Sieversia Peckii. R. Br. in Parry's 1st Voy. 276. Hook. Bot. Mag. t. **2863**. Don, Mill. 2. 528. Dietr. 3. 193. Meyer, Ind. Sem. Petrop. 11. 54.

G. rivale. Linn. Spec. 501. See syn. in Ledeb. Fl. Ross. 2. 23; Pritzel, Icon. Bot. 493; Scheutz, l. c. 37. — Willd. Spec. 2. 1115. Michx. Fl. 1. 301. Pursh, 351. Bigel. Fl. Bost. 206. Torrey, Fl. U. S. 493; Fl. N. Y. 1. 203. Spreng. Syst. 2. 542. Seringe, DC. Prodr. 2. 551, excl. var. *β.* Hook. Fl. Bor.-Am. 1. 175. Don, Mill. 2. 526. Beck, Bot. 101. Fisch. & Meyer, Ind. Sem. Petrop. 3. 39 (Litt.-Ber. zu Linnæa, 12. 98). Torr. & Gray, Fl. 1. 422. Eat. & Wr. 254. Dietr. 3. 191. Meyer

Ind. Sem. Petrop. 11. 47. Gray, Pl. Fendl. 41; Am. Journ. Sci. 2. 33. 411; Manual, 152. Engelm. Pl. Upp. Miss. 191. Hook. f. Arct. Pl. 289. Pl. Bourgeau, 256. Porter, Fl. Col. 35. Rothr. Pl. Wheeler, 37.

G. Rossii. Seringe, DC. Prodr. 2. 553. Torr. & Gray, Fl. 1. 424. Gray, Am. Journ. Sci. 2. 33. 411; Proc. Acad. Philad. 1863, 61. Rothr. Fl. Alask. 445. Watson, King's Rep. 5. 84; Pl. Wheeler, 8. Porter, Hayd. Rep. 1871, 481; Fl. Col. 35. Scheutz, Monog. 59. Rothr. Pl. Wheeler, 37.

Sieversia Rossii. R. Br. in Parry's 1st Voy. 276, **t. C** (Regensb. Flora, 7^2, Beil. 85). Spreng. Syst. 4^2. 199. Cham. & Schlecht. in Linnæa, 2. 5. Hook. Fl. Bor.-Am. 1. 176. Don, Mill. 2. 528. Eat. & Wr. 426. Ledeb. Fl. Ross. 2. 25. Dietr. 3. 193. Hook. f. Journ. Linn. Soc. 1. 124; Arct. Pl. 289.

Potentilla nivalis. Torrey, Ann. Lyc. N. Y. 1. 32, **t. 3, f. 2.** Spreng. Syst. 4^2. 198. Lehmann, Pug. Pl. Nov. 3. 27. Don, Mill. 2. 550.

Var. **humile.** Torr. & Gray, Fl. 1. 424. Walp. Rep. 2. 48. Porter, Hayd. Rep. 1870, 475. Watson, King's Rep. 5. 85.

Sieversia humilis. R. Br. in Parry's 1st Voy. 276 & 308. Cham. & Schlecht. in Linnæa, 2. 6. Hook. Fl. Bor.-Am. 1. 176. Hook. f. Arct. Pl. 325.

G. triflorum. Torrey, Ann. Lyc. N. Y. 2. 195.

Sieversia Rossii, var. *humilis.* Ledeb. Fl. Ross. 2. 25.

G. strictum. Ait. Hort. Kew. 2. 217. See syn. in Ledeb. Fl. Ross. 2. 22; Meyer, Ind. Sem. Petrop. 11. 26; Trautv. & Meyer, Fl. Ochot. 32; Scheutz, Monog. 28. — Willd. Spec. 2. 1113. Pursh, 351. Bigel. Fl. Bost. 2 ed. 207. Torrey, Fl. U. S. 492; Fl. N. Y. 1. 202; Nicol. Rep. 149. Hook. Fl. Bor.-Am. 1. 175, excl. var. β. Don, Mill. 2. 525. Beck, Bot. 101. Fisch. & Meyer, Ind. Sem. Petrop. 3. 36 (Litt.-Ber. zu Linnæa, 12. 95). Torr. & Gray, Fl. 1. 421. Eat. & Wr. 254. Dietr. 3. 171. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 190. Gray, Pac. R. Rep. 12. 43; Manual, 152; Am. Journ. Sci. 3. 3. 306. Hook. f. Arct. Pl. 289 & 325. Pl. Bourgeau, 256. Porter, Hayd. Rep. 1871, 481; Fl. Col. 35. Coulter, same, 1872, 765.

G. Canadense. Murr. Comm. Gœtt. 5. 34, **t. 4**, not Jacq. Michx. Fl. 1. 300. Poir. Suppl. 1. 616. Seringe, DC. Prodr. 2. 550. Don, Mill. 2. 525. Fisch. & Meyer, Ind. Sem. Petrop. 3. 35 (Litt.-Ber. zu Linnæa, 12. 94). Cham. in Linnæa, 6. 589. Lindl. Fl. Med. 226.

G. ranunculoides. Seringe, DC. Prodr. 2. 551.

G. triflorum. Pursh, 736. Poir. Suppl. 5. 574. Bradbury, Cat. 336. Nutt. Genera, 1. 309. Seringe, DC. Prodr. 2. 553. Lodd. Bot. Cab. **t. 1609.** Torr. & Gray, Fl. 1. 423. Torrey, Fl. N. Y. 1. 203; Bot. Wilkes, 287. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 190. Gray, Pac. R. Rep. 12. 43; Ives's Rep. 11; Proc. Acad. Philad. 1863, 61; Manual, 153. Cooper, Pac. R. Rep. 12. 59. Porter, Hayd. Rep. 1870, 475; 1871, 481; Fl. Col. 35. Scheutz, Monog. 53. Watson, King's Rep. 5. 84. Coulter, Hayd. Rep. 1872, 765. Rothr. Pl. Wheeler, 37. Brew. & Wats. Bot. Calif. 1. 176.

G. ciliatum. Pursh, 352. Poir. Suppl. 5. 574. Spreng. Syst. 2. 543. Seringe, DC. Prodr. 2. 554. Torr. & Gray, Fl. 1. 425. Eat. & Wr. 255.

Sieversia triflora. R. Br. in Parry's 1st Voy. 276. Richard. in Journ. Frankl. 12. Spreng. Syst. 2. 543. Hook. Bot. Mag. **t. 2858**; Fl. Bor.-Am. 1. 176; Lond. Journ. Bot. 6. 218. Don, Mill. 2. 528. Eat. & Wr. 426. Dietr. 3. 193. Nutt. in Journ. Acad. Philad. 7. 20. Pl. Bourgeau, 276.

G. pubescens. Hook. Fl. Bor.-Am. 1. 175.

Sieversia rosea. Graham, in Edinb. Phil. Journ. 12. 193.

Sieversia ciliata. Don, Mill. 2. 528. Dietr. 3. 193. Meyer, l. c. 11. 54.

G. Grahami. Steud. Nomenclator, 1. 682.

G. urbanum, Linn., subsp. **Oregonense.** Scheutz, Monog. 26. Gray, Am. Journ. Sci. 3. 3. 306.

G. vernum. Torr. & Gray, Fl. 1. 422. Walp. Rep. 2. 47. Dietr. 3. 191. Meyer, l. c. 11. 23. Benth. & Hook. Gen. Pl. 1. 619. Gray, Manual, 152. Scheutz, Monog. 61. Young, Fl. Texas, 254.

Stylipus vernus. Raf. Neog. 1825, 3; Med. Bot. 1. 223. Hook. Comp. Bot. Mag. 1. 24; Icon. t. **286.** Riddell, Cat. Pl. Ohio, 5. Short, Suppl. Pl. Kentucky, 590. Eat. & Wr. 446.

G. Virginianum. Linn. Spec. 500. Hill, Veg. Syst. 12. 50, t. **50**, f. **2.** Ait. Hort. Kew. 2. 217. Willd. Spec. 2. 1113. Michx. Fl. 1. 301. Pursh, 351. Bigel. Fl. Bost. 207. Elliott, 1. 572. Tratt. Ros. Monog. 3. 118. Torrey, Fl. U. S. 493; Ann. Lyc. N. Y. 2. 195; Frem. Rep. 89; Emory's Rep. 139. Raf. Med. Bot. 1. 220, f. **43.** Don, Mill. 2. 525. Beck, Bot. 101. Fisch. & Meyer, Ind. Sem. Petrop. 3. 33 (Litt.-Ber. zu Linnæa, 12. 93). Meyer, Ind. Sem. Petrop. 11. 24. Gray, Pl. Fendl. 40; Pac. R. Rep. 12. 43; Manual, 152; Am. Journ. Sci. 3. 3. 306. Parry, Pl. Minn. 611. Torr. & Gray, Pac. R. Rep. 2. 164. Scheutz, Monog. 21. The species has been much confused with *G. album*, q. v.

Caryophyllata Virginiana. Lam. Dict. 1. 399.

? *G. laciniatum.* Murr. Nov. Comm. Gœtt. 5. 30, t. **2.**

G. hirsutum. Muhl. Cat. 51. Link, Enum. 2. 65.

G. heterophyllum. Desf.; DC. Prodr. 2. 550.

G. agrimonoides; album, Potentilla arguta.
Canadense; album, strictum.
Carolinianum; album.
cercocarpoides; Fallugia paradoxa.
ciliatum; triflorum.
dryadoides; Cowania Mexicana.
Grahami; triflorum.
Japonicum; macrophyllum.
G. Peckii; radiatum.
pubescens; triflorum.
radiatum; calthifolium.
ranunculoides; strictum.
rotundifolium; calthifolium.
strictum; macrophyllum.
triflorum; Rossii.
urbanum; album.
Virginianum; album, geniculatum.

GILLENIA stipulacea. Nutt. Genera, 1. 307. Barton, Veg. Mat. Med. 1. 71, t. **6.** Elliott, 1. 562. Torrey, Fl. U. S. 484; Fl. N. Y. 1. 201. DC. Prodr. 2. 546. Raf. Med. Bot. 1. 224, f. **44.** Don, Mill. 2. 521. Beck, Bot. 100. Spach, Hist. Veg. 1. 448. Lindl. Fl. Med. 229. Torr. & Gray, Fl. 1. 418. Eat. & Wr. 255. Dietr. 3. 128. Engelm. Pl. Upp. Miss. 190. Chapman, 122. Gray, Manual, 150.

? *Ulmaria rubra.* Hill, Hort. Kew. 214, t. **7.**

Spiræa stipulata. Muhl.; Willd. Enum. 1. 542. Muhl. Cat. 51. Poir. Suppl. 5. 221. Cambess. Monogr. Spir. in Ann. Sci. Nat. 1. 1. 388, t. **28.** Spreng. Syst. 2. 504.

Spiræa stipulacea. Pursh, 343.

G. trifoliata. Moench, Meth. Suppl. 286. Nutt. Genera, 1. 307. Elliott, 1. 562. Torrey, Fl. U. S. 483; Fl. N. Y. 1. 200. DC. Prodr. 2. 546. Hook. Fl. Bor.-Am. 1. 174. Don, Mill. 2. 521. Beck, Bot. 100. Spach, Hist. Veg. 1. 448. Lindl. Fl. Med. 229. Darling. Fl. Cestr. 300. Torr. & Gray, Fl. 1. 418. Eat. & Wr. 255. Dietr. 3. 128. Engelm. Pl. Upp. Miss. 190. Chapman, 121. Gray, Manual, 150. Baillon, Hist. Pl. 1. 388, f. **442.** Buchan, Canad. Naturalist, 14. 293.

Spiræa trifoliata. Linn. Spec. 490. Ait. Hort. Kew. 2. 200. Willd. Spec. 2. 1063. Curtis, Bot. Mag. t. **489.** Michx. Fl. 1. 294. Poir. Dict. 7. 359. Persoon, 2. 47.

Pursh, 343. Barton, Veg. Mat. Med. 1, **t. 5.** Bigelow, Med. Bot. 3. 11, **t. 41.** Cambess. l. c. 387, **t. 17, f. 2** (fl. & fr.).

Ulmaria trifoliata. Hill, Hort. Kew. 214.

HETEROMELES arbutifolia. Roemer, Syn. Monog. 3. 105. Decaisne, Mem. Fam. Pom. 144, **t. 9.** Brew. & Wats. Bot. Calif. 1. 188.

Cratægus arbutifolia. Poir. in Nouv. Duham. 4. 131; Dict. Suppl. 1. 292. Ait. f. Hort. Kew. 3. 202. Lodd. Bot. Cab. **t. 201.**

Aronia arbutifolia. Nutt. Genera, 1. 306.

Photinia arbutifolia. Lindl. in Trans. Linn. Soc. 13. 103; Bot. Reg. **t. 491,** & under t. 1956 (Spreng. Neue Entdeck. 3. 169; Regensb. Fl. 6. 169). Spreng. Syst. 2. 508. DC. Prodr. 2. 631. Cham. & Schlecht. in Linnæa, 2. 542. Don, Mill. 2. 602. Spach, Hist. Veg. 2. 80. Hook. & Arn. Bot. Beechey, 139 & 340. Torr. & Gray, Fl. 1. 473. Dietr. 3. 102. Loud. Arb. 2. 868, **f. 619.** Benth. Bot. Sulph. 14; Pl. Hartw. 307. Torrey, Emory's Rep. 140; Sitgr. Rep. 159; Pac. R. Rep. 4. 85; Mex. Bound. 64; Bot. Wilkes, 291. Wood, Cl.-Book, 329. Boland. Proc. Calif. Acad. 3. 80; Cat. 11. Maximowicz, Bull. Acad. Petersb. 19. 180 (Mélang. Biolog. 9. 180). Wenzig, Linnæa, 38. 96.

Mespilus arbutifolia. Link, Enum. Hort. Berol. 2. 36.

Photinia salicifolia. Presl, Epimel. Bot. 204. Walp. Ann. 3. 858.

Heteromeles Fremontiana. Decaisne, Mem. Fam. Pom. 144.

HORKELIA Bolanderi. Gray, Proc. Am. Acad. 7. 338. Watson, King's Rep. 5. 448. Regel, Trudi Peterb. 1. 152. Brew. & Wats. Bot. Calif. 1. 182. The species of the genus are all referred to *Potentilla* by Benth. & Hook. in Gen. Pl. 1. 621, & by Baillon, Hist. Pl. 1. 369.

Var. Parryi. Watson, Bot. Calif. 1. 182.

H. Californica. Cham. & Schlecht. in Linnæa, 2. 26. Don, Mill. 2. 562. Hook. & Arn. Bot. Beechey, 139. Torr. & Gray, Fl. 1. 434. Walp. Rep. 2. 36. Presl, Epimel. Bot. 198. Gray, Proc. Am. Acad. 6. 529. Watson, King's Rep. 5. 447. Regel, Trudi Peterb. 1. 151. Torrey, Bot. Wilkes, 288. Brew. & Wats. Bot. Calif. 1. 181.

Sibbaldia Californica. Spreng. Syst. 4². 341. Dietr. 2. 1020.

H. grandis. Hook. & Arn. Bot. Beechey, 339.

H. capitata. Torrey, Pac. R. Rep. 4. 84.

Var. cuneata. Gray, Proc. Am. Acad. 6. 529.

H. cuneata. Lindl. Bot. Reg. 23, under t. 1997. Hook. & Arn. Bot. Beechey, 338. Torr. & Gray, Fl. 1. 435. Dietr. 2. 1028. Walp. Rep. 2. 36. Benth. Pl. Hartw. 309. Presl, Epimel. Bot. 198. Torrey, Mex. Bound. 64. Boland. Cat. 10.

Potentilla multijuga. Lehm. Ind. Sem. Hamb. 1849, Add. 6; Pugil. Pl. Nov. 9. 2; Rev. Potent. 29, **t. 7.**

Potentilla cuneata. Benth. & Hook. l. c. Baillon, l. c.

Var. sericea. Gray, Proc. Am. Acad. 6. 529. Brew. & Wats. Bot. Calif. 1. 181.

H. capitata. Lindl. Bot. Reg. under t. 1997. Hook. & Arn. Bot. Beechey, 338. Torr. & Gray, Fl. 1. 435. Dietr. 2. 1028. Walp. Rep. 2. 36. Gray, Proc. Am. Acad. 6. 529. Watson, King's Rep. 5. 447. Regel, Trudi Peterb. 1. 151. Brew. & Wats. Bot. Calif. 1. 181.

H. congesta. Dougl.; Hook. Bot. Mag. **t. 2880**; Fl. Bor.-Am. 1. 196. Don, Mill. 2. 562. Hook. & Arn. Bot. Beechey, 339. Torr. & Gray, Fl. 1. 434. Eat. & Wr. 273. Walp. Rep. 2. 36. Gray, Proc. Am. Acad. 6. 529 & 8. 381. Watson, King's Rep. 5. 448. Regel, Trudi Peterb. 1. 153. Torrey, Bot. Wilkes, 288. Brew. & Wats. Bot. Calif. 1. 181.

H. hirsuta. Lindl. Bot. Reg. under t. 1997.
Sibbaldia congesta. Dietr. 2. 1020.
Potentilla congesta. Benth. & Hook. l. c. Baillon, Hist. Pl. 1. 369, **f. 421, 422.**

H. fusca. Lindl. Bot. Reg. 23, **t. 1997.** Hook. & Arn. Bot. Beechey, 338. Torr. & Gray, Fl. 1. 435. Dietr. 2. 1028. Walp. Rep. 2. 30. Presl, Epimel. Bot. 198. Torrey, Pac. R. Rep. 7. 11. Gray, Proc. Am. Acad. 6. 529. Boland. Cat. 11. Watson, King's Rep. 5. 448. Regel, Trudi Peterb. 1. 152. Brew. & Wats. Bot. Calif. 1. 181.
H. parviflora. Nutt.; Torr. & Gray, Fl. 1. 435. Dietr. 2. 1028. Walp. Rep. 2. 30. Gray, Proc. Am. Acad. 6. 529. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 89 & 447. Regel, Trudi Peterb. 1. 151.
H. cuneata. Newberry, Pac. R. Rep. 6. 73.
H. capitata. Regel, Gart. Fl. 1872, **t. 711.**

Var. **tenella.** Watson, Bot. Calif. 1. 181.

H. purpurascens. Watson, Proc. Am. Acad. 11. 148. Brew. & Wats. Bot. Calif. 1. 182.

H. tenuiloba. Gray, Proc. Am. Acad. 6. 529. Boland. Cat. 10. Watson, King's Rep. 5. 448. Regel, Trudi Peterb. 1. 153. Brew. & Wats. Bot. Calif. 1. 182.
H. fusca, var. *tenuiloba.* Torrey, Pac. R. Rep. 4. 84.
H. congesta. Newberry, Pac. R. Rep. 6. 73.

H. tridentata. Torrey, Pac. R. Rep. 4. 84, **t. 6.** Gray, Proc. Am. Acad. 6. 528 & 530. Regel, Trudi Peterb. 1. 152. Brew. & Wats. Bot. Calif. 1. 182.
Ivesia tridentata. Gray, Proc. Am. Acad. 7. 338. Watson, King's Rep. 5. 448.
H. Tilingii. Regel, Trudi Peterb. 1. 151; Gart. Fl. 1872, **t. 711.**

IVESIA Baileyi. Watson, King's Rep. 5. 90 & 449. Brew. & Wats. Bot. Calif. 1. 184.

Var. **setosa.** Watson, King's Rep. 5. 90.

I. depauperata. Gray; Brew. & Wats. Bot. Calif. 1. 184.
Potentilla depauperata. Engelm.; Gray, Proc. Am. Acad. 7. 399.

I. Gordoni. Torr. & Gray; Newberry, Pac. R. Rep. 6. 72. Gray, Proc. Am. Acad. 7. 530. Anderson, Cat. Pl. Nev. 120. Porter, Hayd. Rep. 1870, 475; 1871, 481. Watson, King's Rep. 5. 90 & 148. Rothr. Pl. Wheeler, 37. Brew. & Wats. Bot. Calif. 1. 183.
Horkelia Gordoni. Hook. in Kew Journ. Bot. 5. 341, **t. 12.** Engelm. Pl. Upp. Miss. 190. Walp. Ann. 4. 664.
H. (?) *multifoliolata.* Torrey, Sitgr. Rep. 159 (Regensb. Flora, 38. 361; Bonplandia, 3. 95).
Potentilla Gordoni. Benth. & Hook. l. c. Baillon, l. c.

Var. **pygmæa.** Watson, Bot. Calif. 1. 183.
I. pygmæa. Gray, Proc. Am. Acad. 6. 530. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 448.

Var. **lycopodioides.** Watson, Bot. Calif. 1. 183.
I. lycopodioides. Gray, Proc. Am. Acad. 6. 530. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 448.
Potentilla lycopodioides. Baillon, Hist. Pl. 1. 371.

I. gracilis. Torr. & Gray; Newberry, Pac. R. Rep. 6. 72, **t. 11.** Brew. & Wats. Bot. Calif. 1. 184.
Potentilla Newberryi. Gray, Proc. Am. Acad. 6. 532.

I. Kingii. Watson, King's Rep. 5. 91 & 448. Brew. & Wats. Bot. Calif. 1. 184.

I. Muirii. Gray, Proc. Am. Acad. 8. 627. Brew. & Wats. Bot. Calif. 1. 183.

I. Pickeringii. Torrey, Bot. Wilkes, 288, **t. 4.** Torr. & Gray; Newberry, Pac. R. Rep. 6. 72. Gray, Proc. Am. Acad. 6. 531. Watson, King's Rep. 5. 448. Brew. & Wats. Bot. Calif. 1. 182.

Potentilla Pickeringii. Benth. & Hook. l. c.

I. santolinoides. Gray, Proc. Am. Acad. 6. 531 & 7. 339. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 448. Brew. & Wats. Bot. Calif. 1. 183.

Potentilla (?) ——. Benth. & Hook. Gen. Pl. 1. 621.

Potentilla santolinoides. Baillon, Hist. Pl. 1. 370.

I. unguiculata. Gray, Proc. Am. Acad. 7. 339. Watson, King's Rep. 5. 448. Brew. & Wats. Bot. Calif. 1. 183.

I. Webberi. Gray, Proc. Am. Acad. 11. 71. Brew. & Wats. Bot. Calif. 1. 183.

MESPILUS. See under *Cratægus.*

M. acerifolia; Cratægus cordata.
Amelanchier & arborea; Amelanchier Canadensis.
arbutifolia; Pirus arbutifolia.
axillaris; Cratægus parvifolia.
Azarolus; C. spathulata.
Calpodendron; C. tomentosa.
Canadensis; Amelanchier Canadensis, Pirus arbutifolia.
cornifolia; C. tomentosa.
cuneifolia; C. Crus-galli, tomentosa.
cuneiformis; C. Crus-galli.
elliptica; C. Crus-galli, flava.
flabellata; C. coccinea.
flexispina; C. flava, parvifolia.
flexuosa; C. parvifolia.
glandulosa; C. coccinea.
hiemalis; C. flava.
M. laciniata; C. parvifolia.
lobata; C. tomentosa.
lucida; C. Crus-galli.
monogyna; C. apiifolia.
nivea; Amelanchier Canadensis.
odorata; Cratægus tomentosa.
Oxyacantha; C. parvifolia.
Phœnopyrum; C. cordata.
populifolia; C. coccinea.
pruinosa; C. tomentosa.
prunellifolia; C. Crus-galli.
pubescens; C. coccinea.
punctata & pyrifolia; C. tomentosa.
rotundifolia; C. coccinea, Crus-galli.
tiliæfolia; C. subvillosa.
tomentosa; C. parvifolia.
viridis & Wendlandii; C. coccinea.
xanthocarpa; C. parvifolia.

NEILLIA opulifolia. Benth. & Hook. Gen. Pl. 1. 612. Brew. & Wats. Bot. Calif. 1. 171.

Spiræa opulifolia. Linn. Spec. 489. Marshall, Arbust. 146. Ait. Hort. Kew. 2. 198. Schmidt, Arb. **t. 32.** Moench, Meth. 662. Willd. Arb. 374; Spec. 2. 1059; Enum. 542. Michx. Fl. 1. 293. Poir. Dict. 7. 354. Persoon, 2. 46. Pursh, 342. Elliott, 1. 560. James, Long's Exped. 2. 96 & 344. Cambess. Monog. Spir. 54, **t. 17, f. 1.** Torrey, Fl. U. S. 482; Ann. Lyc. N. Y. 2. 194; Fl. N. Y. 1. 198; Pac. R. Rep. 4. 83; Bot. Wilkes, 285. Loisel. in Nouv. Duham. 6. 61, **t. 14.** Spreng. Syst. 2. 502. Seringe, DC. Prodr. 2. 542. Hook. Fl. Bor.-Am. 1. 171; Comp. Bot. Mag. 1. 24; Lond. Journ. Bot. 6. 217. Don, Mill. 2. 517. Beck, Bot. 98. Spach, Hist. Veg. 1. 431. Darling. Fl. Cestr. 298. Hook. & Arn. Bot. Beechey, 338. Torr. & Gray, Fl. 1. 413. Eat. & Wr. 440. Dietr. 3. 124. Loud. Arb. 2. 723, **f. 427, 428.** Emerson, Trees of Mass. 426. Presl, Epimel. Bot. 195. Parry, Pl. Minn. 611. Richard. Arct. Exped. 425. Durand, Pl. Pratten. 87. Newberry, Pac. R. Rep. 6. 71. Cooper, same, 12. 59. Agardh, Theor. Syst. **t. 12, f. 13.** Curtis, Bot. N. Car. 104. Lesqx. Fl. Ark. 358. Chapman, 120. Bolander, Proc. Calif. Acad. 3. 79; Cat. 11. Gray, Manual, 149; Proc. Am. Acad. 8. 381. Porter, Hayd. Rep. 1870, 475; 1871, 481; Fl. Col. 33. Watson, King's Rep. 5. 80. Coulter, Hayd. Rep. 1872, 764.

Spiræa Caroliniana. Marshall, Arbust. 146.

Physocarpa opulifolia, riparia & tomentosa. Raf. New Flora, 3. 73 & 74.

Var. **ferruginea.**

Spiræa opulifolia, var. *ferruginea.* Nutt.; Torr. & Gray, Fl. 1. 414. Chapman, 120. Wood, Cl.-Book, 344.

Var. **mollis.** Brew. & Wats. Bot. Calif. 1. 171.

Spiræa capitata. Pursh, 342. Poir. Suppl. 5. 222. Cambess. Monog. Spir. 31. Spreng. Syst. 2. 502. Seringe, DC. Prodr. 2. 542. Don, Mill. 2. 518. Spach, Hist. Veg. 1. 439. Eat. & Wr. 440. Loud. Arb. 2. 723.

S. opulifolia, var. *mollis.* Hook. Fl. Bor.-Am. 1. 171. Hook. & Arn. Bot. Beechey, 338. Benth. Pl. Hartw. 309.

N. Torreyi. Watson, Proc. Am. Acad. 11. 136. Brew. & Wats. l. c.

Spiræa monogyna. Torrey, Ann. Lyc. N. Y. 2. 194. Don, l. c. Eat. & Wr. 441.

Epicostorus montanus. Raf. Atl. Journ. 1832, 144; New Flora, 3. 74.

Spiræa opulifolia, var. *pauciflora.* Hook. Fl. Bor.-Am. 1. 171. Torr. & Gray, Fl. 1. 414. Gray, Pl. Fendl. 40; Am. Journ. Sci. 2. 33. 411; Proc. Acad. Philad. 1863, 61. Torrey, Stansb. Rep. 387. Engelm. Pl. Upp. Miss. 190. Durand, Fl. Utah, 163. Watson, King's Rep. 5. 80. Coulter, Hayd. Rep. 1872, 764. Porter, Fl. Col. 33 (as var. *parvifolia*).

NEVIUSIA Alabamensis. Gray, Proc. Am. Acad. 4. 99. Chapman, 121. Wood, Bot. & Fl. 104. Baillon, Hist. Pl. 1. 393.

NUTTALLIA cerasiformis. Torr. & Gray in Hook. & Arn. Bot. Beechey, 336, t. **82**; Fl. 1. 412. Walp. Rep. 5. 659. Benth. Pl. Hartw. 307. Lindl. Journ. Hort. Soc. 4. 222, **fig.** Belg. Hort. 8. 195, t. **53.** Torrey, Pac. R. Rep. 4. 83; Mex. Bound. 63; Bot. Wilkes, 285. Newberry, Pac. R. Rep. 6. 71. Cooper, same, 12. 32 & 59. Boland. in Proc. Calif. Acad. 3. 79; Cat. 10. Dickson, Trans. Bot. Soc. Edinb. 1866, 186 (Bull. Bot. Soc. France, 14, Rev. Bibl. 113). Gray, Proc. Am. Acad. 8. 381. Brew. & Wats. Bot. Calif. 1. 168.

PERAPHYLLUM ramosissimum. Nutt.; Torr. & Gray, Fl. 1. 474. Dietr. 3. 158. Walp. Rep. 5. 660. Wenzig, Linnæa, 38. 115. Brandegee, Fl. S. W. Col. 236. Referred to *Amelanchier* by Benth. & Hook. in Gen. Pl. 1. 628.

PIRUS Americana. DC. Prodr. 2. 637. Watson, Dendr. Brit. t. **54.** Spreng. Syst. 2. 511. Hook. Fl. Bor.-Am. 1. 204. Don, Mill. 2. 648. Beck, Bot. 113. Audubon, Birds, t. **363.** Torr. & Gray, Fl. 1. 472. Eat. & Wr. 383. Torrey, Fl. N. Y. 1. 224. Dietr. 3. 155. Loud. Arb. 3. 920, t. **184.** Emerson, Trees of Mass. 439. Nutt. Sylva, 2. 25, t. **50.** Richard. Arct. Exped. 428. Lange, Pl. Groenl. 134. Curtis, Bot. N. Car. 70. Chapman, 129. Gray, Manual, 161. Brew. & Wats. Bot. Calif. 1. 189.

Sorbus Americana. Marsh. Arbust. 145. Willd. Enum. 520. Pursh, 341. Poir. Suppl. 5. 164. Nutt. Genera, 1. 305. Bigel. Fl. Bost. 2 ed. 194. Torrey, Fl. U. S. 477. Spach, Hist. Veg. 2. 95. Roem. Syn. Monog. 3. 138. Maximowicz, Bull. Acad. Petersb. 19. 174 (Mélang. Biol. 9. 171). Wenzig, Linnæa, 38. 71. Decaisne, Mem. Fam. Pom. in Nouv. Arch. Mus. 10. 158.

Sorbus Aucuparia. Poir. Dict. 7. 234, in part. Persoon, 2. 38 & Add. (as var. *Americana*). Bigel. Fl. Bost. 119. Decaisne, l. c., as to Greenland ?

P. Aucuparia. Meyer, Pl. Lab. 81. Schlecht. Fl. Lab. in Linnæa, 10. 99. Hook. f. Arct. Pl. 290 & 327, in part.

Sorbus humifusa. Raf. Med. Bot. 2. 265.

Var. **microcarpa.** Torr. & Gray, Fl. 1. 472.

Sorbus Aucuparia, var. *α.* Michx. Fl. 1. 290.

Sorbus microcarpa. Pursh, 341. Poir. Suppl. 5. 164. Elliott, 1. 555. Torrey, Fl. U. S. 477. Spach, Hist. Veg. 2. 95. Roem. Syn. Monog. 3. 138.

P. microcarpa. Spreng. Syst. 2. 511. DC. Prodr. 2. 636. Don, Mill. 2. 648. Beck, Bot. 113. Eat. & Wr. 383. Loud. Arb. 2. 921.

Sorbus Americana, var. *microcarpa.* Wenzig, Linnæa, 38. 71.

Sorbus riparia. Raf. New Fl. 3. 15.

P. angustifolia. Ait. Hort. Kew. 2. 176. Willd. Spec. 2. 1020. Poir. Dict. 5. 455. Persoon, 2. 40. Pursh, 341. Elliott, 1. 559. Torrey, Fl. U. S. 480. Spreng. Syst. 2. 509. DC. Prodr. 2. 635. Watson, Dendr. Brit. **t. 132.** Lindl. Bot. Reg. 14, **t. 1207.** Don, Mill. 647. Beck, Bot. 113. Hook. Comp. Bot. Mag. 1. 25. Torr. & Gray, Fl. 1. 741. Eat. & Wr. 382. Dietr. 3. 154. Loud. Arb. 2. 909, **t. 177.** Nutt. Sylva, 2. 24. Curtis, Bot. N. Car. 69. Chapman, 128. Gray, Manual, 161.

P. coronaria. Wangenh. Amer. 61, **t. 21, f. 47.** Walter, 148.

Malus angustifolia. Michx. Fl. 1. 292. Decaisne, l. c. 155.

Malus sempervirens. Desf. Arb. 2. 141. Nouv. Duham. 6, **t. 43, f. 1.** Poir. Suppl. 4. 524. Roem. Syn. Monog. 3. 191.

P. coronaria, var. *angustifolia.* Wenzig, Linnæa, 38. 41.

P. arbutifolia. Linn. f. Suppl. 256. Wangenh. Amer. 89, **t. 28, f. 64.** Ehrh. Beitr. 1. 184 & 2. 68. Willd. Spec. 2. 1012; Enum. 525. Ait. f. Hort. Kew. 3. 207. Bigel. Fl. Bost. 195. Spreng. Syst. 2. 510. DC. Prodr. 2. 637. Lindl. Trans. Hort. Soc. 7. 224 (Litt.-Ber. zu Linnæa, 1830, 106). Hook. Fl. Bor.-Am. 1. 204; Bot. Mag. **t. 3668.** Don, Mill. 2. 649. Beck, Bot. 114. Darling. Fl. Cestr. 206. Torr. & Gray, Fl. 1. 471. Eat. & Wr. 383. Torrey, Fl. N. Y. 1. 224. Dietr. 3. 155. Loud. Arb. 2. 925, **f. 646–648.** Emerson, Trees of Mass. 441. Richard. Arct. Exped. 428. Curtis, Bot. N. Car. 69. Lesqx. Fl. Ark. 359. Chapman, 128. Gray, Manual, 161.

Mespilus Canadensis. Linn. Spec. 478, in part. Marshall, Arbust. 91.

Mespilus arbutifolia. Linn. Spec. 478. Walter, 148. Ait. Hort. Kew. 2. 173. Schmidt, Arb. **t. 86.** Michx. Fl. 1. 290.

Crataegus pyrifolia. Lam. Dict. 1. 83.

Aronia pyrifolia. Persoon, 2. 39. Roem. Syn. Monog. 3. 159.

Crataegus serrulata. Poir. Suppl. 1. 292.

Aronia arbutifolia. Elliott, 1. 556. Torrey, Fl. U. S. 478. Spach, Hist. Veg. 2. 89. Roem. l. c. 160. Decaisne, Mem. Pom. 138.

P. floribunda. Lindl. Bot. Reg. 12, **t. 1006**; Trans. Hort. Soc. 7. 224 (Litt.-Ber. zu Linnæa, 1830, 106). Don, Mill. 2. 649. Walp. Rep. 2. 54. Loud. Arb. 2. 927.

P. depressa. Lindl. l. c. 7. 230, and same citations.

Aronia floribunda, depressa & *densiflora.* Spach, Hist. Veg. 2. 88–90. Roem. Syn. Monog. 3. 159 & 160. Decaisne, Mem. Pom. 138.

Sorbus arbutifolia. Wenzig, Linnæa, 38. 65.

Var. melanocarpa. Hook. Fl. Bor.-Am. 1. 204. Darling. Fl. Cestr. 206. Torr. & Gray, Fl. 1. 471. Torrey, Fl. N. Y. 1. 224. Chapman, 129. Gray, Manual, 161. Buchan, Canad. Naturalist, 14. 293.

Crataegus arbutifolia. Lam. Dict. 1. 83.

Mespilus arbutifolia, var. *nigra.* Willd. Spec. 2. 1021.

Mespilus arbutifolia, var. *melanocarpa.* Michx. Fl. 1. 292.

Aronia arbutifolia. Persoon, 2. 39.

P. melanocarpa. Willd. Enum. 525. Pursh, 339. Spreng. Syst. 2. 509. DC. Prodr. 2. 637. Lindl. in Trans. Hort. Soc. 7. 232 (Litt.-Ber. l. c.). Don, Mill. 2. 649. Beck, Bot. 114. Eat. & Wr. 383. Loud. Arb. 2. 926, **f. 649.**

Aronia melanocarpa. Elliott, 1. 557. Nutt. Genera, 1. 306. Spach, Hist. Veg 2. 90. Roem. Syn. Monog. 3. 161. Decaisne, Mem. Pom. 137.

Aronia arbutifolia, var. *melanocarpa.* Torrey, Fl. U. S. 479.

P. grandifolia. Lindl. Bot. Reg. 14, t. **1154**; Trans. Hort. Soc. 7. 233 (Litt.-Bot. l. c.). Don, Mill. 2. 649. Walp. Rep. 2. 54. Loud. Arb. 2. 928.

P. pubens. Lindl. l. c. 7. 232, and same citations.

Aronia grandifolia, pubens & glabrescens. Spach, Hist. Veg. 2. 91. Roem. l. Decaisne, l. c.

Aronia pumila. Roem. Syn. Monog. 3. 161.

Sorbus arbutifolia, var. *melanocarpa.* Wenzig, Linnæa, 38. 67.

Var. **macrophylla.** Hook. Comp. Bot. Mag. 1. 25.

P. coronaria. Linn. Spec. 480. Marsh. Arbust. 118. Ait. Hort. Kew. 2. 17 Willd. Arb. 265; Sp. 2. 1019; Enum. 527. Persoon, 2. 40. Pursh, 340. Sims, Bot Mag. t. **2009**. Elliott, 1. 559. Ker, Bot. Reg. 8, t. **651**. James, Long's Expe 1. 317. Spreng. Syst. 2. 510. DC. Prodr. 2. 635. Don, Mill. 2. 647. Beck, Bo 113. Hook. Comp. Bot. Mag. 1. 25. Reichenb. Fl. Exot. t. **240**. Torr. & Gra Fl. 1. 470. Eat. & Wr. 382. Torrey, Fl. N. Y. 1. 223. Dietr. 3. 154. Loud. Ar 2. 908, t. **176**. Richard. Arct. Exped. 428. Parry, Pl. Minn. 612. Curtis, Bot. Car. 69. Chapman, 128. Gray, Manual, 161. Wenzig, Linnæa, 38. 40, excl. va Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 325.

Malus coronaria. Mill.; Moench, Meth. 682. Michx. Fl. 1. 292. Poir. Dic 5. 562. Nouv. Duham. 6, t. **44, f. 1.** Michx. f. Arbr. Am. 3. 65, t. **10.** Spac Hist. Veg. 2. 136, t. **8.** Roem. Syn. Monog. 3. 191. Decaisne, Mem. Pom. 144.

P. rivularis. Dougl.; Hook. Fl. 1. 203, t. **68.** Don, Mill. 2. 647. Torr. Gray, Fl. 1. 471. Eat. & Wr. 383. Walp. Rep. 2. 53. Dietr. 3. 154. Ledeb. F Ross. 2. 99. Nutt. Sylva, 2. 22, t. **49.** Richard. Arct. Exped. 428. Torrey, Pa R. Rep. 4. 85; Bot. Wilkes, 292. Newberry, Pac. R. Rep. 6. 73. Cooper, sam 12. 29 & 60. Regel, Ind. Sem. h. Petrop. 1858, 51. Rothr. Fl. Alask. 435 & 44 Boland. Cat. 11. Gray, Proc. Am. Acad. 8. 382. Wenzig, Linnæa, 38. 38. Brew. & Wats. Bot. Calif. 1. 188.

P. diversifolia. Bongard, Veg. Sitch. 133 (Presl, Repert. Bot. 1. 313).

P. fusca. Raf. Med. Bot. 2. 254.

P. subcordata. Ledeb. Fl. Ross. 2. 95.

Malus rivularis & diversifolia. Roem. l. c. 3. 215. Decaisne, Mem. Pom. 155.

Malus subcordata. Roem. l. c. 192.

P. sambucifolia. Cham. & Schlecht. in Linnæa, 2. 30. Bongard, Veg. Sitch. 1 Don, Mill. 2. 648. Torr. & Gray, Fl. 1. 472. Walp. Rep. 2. 53. Dietr. 3. 1 Ledeb. Fl. Ross. 2. 99. Trautv. & Meyer, Fl. Ochot. 37. Maximowicz, Prim. Amur. 103. Rothr. Fl. Alask. 446. Cooper, Am. Naturalist, 3. 406 (as *fraxi folia* ?). Gray, Manual, 161; Proc. Am. Acad. 8. 382. Porter, Hayd. Rep. 18 475; Fl. Col. 38. Watson, King's Rep. 5. 92. Brew. & Wats. Bot. Calif. 1. 189.

Sorbus Aucuparia, var. *β.* Michx. Fl. 1. 290.

Sorbus Aucuparia. Schrank, Pfl. Lab. 25.

P. Americana. Richard. Frankl. Journ. 23 ? Newberry, Pac. R. Rep. 6. Cooper, same, 12. 60. Torrey, Bot. Wilkes, 292.

P. Aucuparia. Meyer, Pl. Lab. 81. Schlecht. in Linnæa, 10. 99. Pl. Bourge 256 & 263. Hook. f. Arct. Pl. 290 & 327, in part.

Sorbus sambucifolia. Roem. Syn. Monog. 3. 139. Maximowicz, in Bull. Ac Petersb. 19. 174 (Mélang. Biol. 9. 172). Wenzig, Linnæa, 38. 73. Decaisne, Me Pom. 159.

Sorbus Sitchensis. Roem. l. c.

P. alnifolia; Amelanchier alnifolia.
Americana; sambucifolia.
Aucuparia; Americana, sambucifolia.
Bartramiana; Amelanchier Canadensis.
coronaria; angustifolia.
depressa; arbutifolia.
diversifolia; rivularis.
floribunda; arbutifolia.
fraxinifolia; sambucifolia.
fusca; rivularis.
P. glandulosa; Cratægus coccinea.
grandifolia & *melanocarpa*; arbutifolia.
microcarpa; Americana.
Neumanniana & *ovalis*; Amelanchier Canadensis.
pubens; arbutifolia.
sanguinea; Amelanchier alnifolia & Canadensis.
subcordata; rivularis.
Wangenheimiana; Amelanchier Canadensis.

POTENTILLA Anserina. Linn. Spec. 495. See syn. in Ledeb. Fl. Ross. 2. 44; Lehmann, Monog. 74, & Rev. Pot. 188; Trautv. & Meyer, Fl. Ochot. 33. — Michx. Fl. 1. 304. Pursh, 356. Bigel. Fl. Bost. 124. Schrank, Pfl. Lab. 26. James, Long's Exp. 2. 342. Torrey, Fl. U. S. 498; Fl. N. Y. 1. 210; Frem. Rep. 89; Pac. R. Rep. 4. 84; Bot. Wilkes, 289. Spreng. Syst. 2. 535. Seringe, DC. Prodr. 2. 582. Chamm. & Schlecht. in Linnæa, 2. 24. E. Meyer, Pl. Lab. 76. Hook. Fl. Bor.-Am. 1. 189. Bongard, Veg. Sitch. 132. Beck, Bot. 106. Schlecht. Fl. Lab. in Linnæa, 10. 98. Hook. & Arn. Bot. Beechey, 123 & 338. Torr. & Gray, Fl. 1. 444. Eat. & Wr. 373. Gray, Pl. Fendl. 42; Pac. R. Rep. 12. 43; Manual, 155. Seem. Bot. Herald, 29 & 52. Engelm. Pl. Upp. Miss. 191. Newberry, Pac. R. Rep. 6. 72. Cooper, same, 12. 38 & 59. Lange, Pl. Groenl. 135. Hook. f. Arct. Pl. 290. Pl. Bourgeau, 256. A. H. Smith, Proc. Acad. Philad. 1867, 19. Rothr. Fl. Alask. 445; Pl. Wheeler, 37. Boland. Cat. 12. Porter, Hayd. Rep. 1870, 475; 1871, 482; Fl. Col. 38. Watson, King's Rep. 5. 89; Rev. Pot. in Proc. Am. Acad. 8. 562; Pl. Wheeler, 8. Coulter, Hayd. Rep. 1872, 765. Brew. & Wats. Bot. Calif. 1. 180.

Var. grandis. Lehm. in Hook. Fl. Bor.-Am. 1. 189; Rev. Pot. 190. Torr. & Gray, Fl. 1. 444. Ledeb. Fl. Ross. 2. 45.

Var. Groenlandica. Tratt. Ros. 4. 13. Nestler, Monog. Pot. 35. Hook. in Parry's 3d Voy. Appx. 125; Fl. Bor.-Am. 1. 189. Seringe, DC. Prodr. 2. 582. Schlecht. in Linnæa, 10. 88. Torr. & Gray, Fl. 1. 444. Lehm. Rev. Pot. 190. Lange, Pl. Groenl. 135.

P. Egedii. Wormsk. Fl. Dan. 9, t. **1578.** Lehm. Monog. Pot. 74. Seringe, DC. Prodr. 2. 582. Spreng. Syst. 2. 535. Don, Mill. 2. 560. Dietr. 3. 189.

P. anserina, var. *Egedii.* Torr. & Gray, Fl. 1. 444.

P. argentea. Linn. Spec. 497. See syn. in Lehm. Monog. Pot. 94 & Rev. Pot. 96; Seringe, DC. Prodr. 2. 576; Ledeb. Fl. Ross. 2. 47. — Pursh, 355. Bigel. Fl. Bost. 124. Torrey, Fl. U. S. 497; Fl. N. Y. 1. 209; Nicol. Rep. 149. Spreng. Syst. 2. 537. Lehm. in Hook. Fl. Bor.-Am. 1. 191. Beck, Bot. 107. Torr. & Gray, Fl. 1. 441. Eat. & Wr. 373. A. H. Smith, Proc. Acad. Philad. 1867, 19. Gray, Manual, 154. Watson, Rev. Pot. 558.

P. arguta. Pursh, 630. Poir. Suppl. 4. 538. Bradbury, Cat. 337. Richard. Frankl. Journ. Appx. 20. Lindl. Bot. Reg. 16, t. **1379.** Hook. (& Lehm.) Fl. Bor.-Am. 1. 186, t. **63.** Don, Mill. 2. 558. Beck, Bot. 107. Bigel. Fl. Bost. 3 ed. 219. Torr. & Gray, Fl. 1. 445. Eat. & Wr. 374. Walp. Rep. 2. 35. Dietr. Syn. 3. 186. Torrey, Fl. N. Y. 1. 209; Nicol. Rep. 149; Frem. Rep. 89. Parry, Pl. Minn. 612. Engelm. Pl. Upp. Miss. 190. Lehm. Rev. Pot. 50. Gray, Pac. R. Rep. 12. 43; Manual, 154. Pl. Bourgeau, 256. Porter, Hayd. Rep. 1870, 475; Fl. Col. 35. Coulter, Hayd. Rep. 1872, 765. Watson, Rev. Pot. 551.

Geum agrimonoides. Pursh, 351. Poir. Suppl. 5. 574. Torrey, Cat. Pl 92. Spreng. Syst. 2. 543. Seringe, DC. Prodr. 2. 554. Eat. & Wr. 254.

Boottia sylvestris. Bigelow, Fl. Bost. 2 ed. 206.

P. confertiflora. Torrey, Fl. U. S. 1. 490. Spreng. Syst. 4. 189. Lehr Stirp. Pug. 3. 24.

P. Pennsylvanica, var. *arguta.* Torrey, Ann. Lyc. N. Y. 2. 197.

Var. **ferruginea.** Lehm. Rev. Pot. 50.

P. ferruginea. Dougl.; Paxt. Mag. 5, t. **233.**

P. Bigelowiana. Wenderoth, Sem. h. Marb. 1841 (Litt.-Ber. zu Linnæa, 1

P. biflora. Willd.; Schlecht. in Mag. Berl. 7. 207. See syn. in Lehm. Pot., & Rev.; Ledeb. Fl. Ross. 2. 61. — Richard. in Frankl. Journ. 21. Leh nog. Pot. 192, t. **20**; Rev. Pot. 20, t. **62.** Cham. & Schlecht. Linnæa, Hook. Fl. Bor.-Am. 1. 195. Hook. & Arn. Bot. Beechey, 123. Torr. & Fl. 1. 442. Eat. & Wr. 372. Dietr. 3. 180. Seem. Bot. Herald, 29. Il Journ. Linn. Soc. 1. 124; Arct. Pl. 290. Rothr. Fl. Alask. 445. Watson Pot. 561.

P. brevifolia. Nutt.; Torr. & Gray, Fl. 1. 442. Walp. Rep. 2. 34. Dietr. Lehm. Rev. Pot. 46. Watson, Rev. Pot. 560.

P. Breweri. Watson, Rev. Pot. 555. Brew. & Wats. Bot. Calif. 1. 178.

Var. **expansa.** Watson, Bot. Calif. 1. 179.

P. Canadensis. Linn. Spec. 498. Walter, 150. Willd. Spec. 2. 1106. Fl. 1. 303. Poir. Dict. 5. 595. Persoon, 2. 55. Pursh, 354. Nestler, Monc 58, t. **10**, f. **1.** Lehm. Monog. Pot. 118; Hook. Fl. Bor.-Am. 1. 192; Rev. P Elliott, 1. 574. Torrey, Fl. U. S. 496; Fl. N. Y. 1. 208. Spreng. Syst. 2. 53 ringe, DC. Prodr. 2. 575. Don, Mill. 2. 552. Beck, Bot. 106. Darling. Fl 303. Torr. & Gray, Fl. 1. 443. Eat. & Wr. 373. Engelm. Pl. Upp. Mi Gray, Pac. R. Rep. 12. 43; Manual, 154. Chapman, 124. Pl. Bourgea Watson, Rev. Pot. 562.

P. pumila. Poir. Dict. 5. 594. Pursh, 354. Spreng. Syst. 2. 537.

P. sarmentosa. Willd. Enum. 554. Nestler, Monog. Pot. 64. Bigelow, F 2 ed. 204. Eat. & Wr. 373. Dietr. 3. 180.

Var. **simplex.** Torr. & Gray, Fl. 1. 443. Lehm. Nov. Stirp. Pug. 9. 72 Pot. 188. Gray, Manual, 154. Watson, Rev. Pot. 562.

P. simplex. Michx. Fl. 1. 303. Poir. Dict. 5. 596. Persoon, 2. 55. Pur Bigel. Fl. Bost. 124. Nestler, Monog. Pot. 40, t. **9.** Lehm. Monog. Pc Hook. Fl. Bor.-Am. 1. 193. Elliott, 1. 574. Torrey, Fl. U. S. 497. Spreng 2. 538. Seringe, DC. Prodr. 2. 575. Don, Mill. 2. 552. Beck, Bot. 106. D Fl. Cestr. 204. Eat. & Wr. 373.

P. Caroliniana. Poir. Dict. 5. 595. Persoon, 2. 55.

P. crinita. Gray, Pl. Fendl. 41. Walp. Ann. 2. 480. Lehm. Rev. Pot. 63 Watson, Rev. Pot. 555. Brandegee, Fl. S. W. Col. 236.

P. dissecta. Pursh, 355. Spreng. Syst. 2. 536. Seringe, DC. Prodr. Lehm. Nov. Stirp. Pug. 3. 20; Hook. Fl. Bor.-Am. 1. 193; Rev. Pot. 28. Mill. 2. 553 & 560. Nutt. in Journ. Acad. Philad. 7. 20. Torr. & Gray, Fl. Eat. & Wr. 373. Dietr. 3. 180 & 190. Watson, Rev. Pot. 556. Porter, Fl. (Rothr. Pl. Wheeler, 37. Brew. & Wats. Bot. Calif. 1. 179.

P. diversifolia. Lehm. Nov. Stirp. Pug. 2. 9; Hook. Fl. Bor.-Am. 1. 190 Pot. 72, t. **31.** Don, Mill. 2. 556. Torr. & Gray, Fl. 1. 439. Eat. & W Walp. Rep. 2. 33. Dietr. 3. 185. Torrey, Frem. Rep. 89. Engelm. Pl. Upp 191. Pl. Bourgeau, 256 & 262. Gray, Am. Journ. Sci. 2. 33. 411; Proc. Am

8. 381. Watson, King's Rep. 5. 86. Porter, Hayd. Rep. 1871, 482. Coulter, same, 1872, 765.

P. Drummondii. Lehm. Nov. Stirp. Pug. 2. 9; Hook. Fl. Bor.-Am. 1. 189, **t. 65** Rev. Pot. 66. Don, Mill. 2. 558. Torr. & Gray, Fl. 1. 439. Eat. & Wr. 374. Walp. Rep. 2. 32. Dietr. 3. 178. Pl. Bourgeau, 256. Gray, Proc. Acad. Philad. 1863, 61.

P. rubricaulis. Lehm. Nov. Stirp. Pug. 2. 11; Hook. Fl. Bor.-Am. 1. 191; Rev. Pot. 68, **t. 30**. Don, Mill. 2. 556. Torr. & Gray, Fl. 1. 438. Eat. & Wr. 374. Walp. Rep. 2. 32. Dietr. 3. 185.

Var. **glaucophylla.** Lehm. Rev. Pot. 73. Watson, King's Rep. 5. 86, in part; Rev. Pot. 556. Porter, Fl. Col. 37.

P. glaucophylla. Lehm. in Del. Sem. h. Hamb. 1836, 7 (Litt.-Ber. zu Linnæa, 1838, 83). Walp. Rep. 2. 33.

Var. **multisecta.** Watson, King's Rep. 5. 86; Rev. Pot. 557. Coulter, Hayd. Rep. 1872, 765.

Var. (?) **decurrens.** Watson, Rev. Pot. 557.

P. effusa. Dougl.; Lehm. Nov. Stirp. Pug. 2. 8; Hook. Fl. Bor.-Am. 1. 187; Rev. Pot. 64, **t. 22**. Don, Mill. 2. 557. Torr. & Gray, Fl. 1. 437. Eat. & Wr. 374. Walp. Rep. 2. 32. Dietr. 3. 186. Hook. in Lond. Journ. Bot. 6. 219. Engelm, Pl. Upp. Miss. 191. Pl. Bourgeau, 256. Watson, l. c. 555. Porter, Fl. Col. 36.

Var. **gossypina.** Torr. & Gray, Fl. 1. 437. Lehm. Rev. Pot. 64.

P. gossypina. Nutt.; Hook. in Lond. Journ. Bot. 6. 219.

P. emarginata. Pursh, 353. Lehm. Monog. Pot. 174; Hook. Fl. Bor.-Am. 1. 194; Rev. Pot. 161. Spreng. Syst. 2. 540. E. Meyer, Fl. Lab. 74. Don, Mill. 2. 551. Torr. & Gray, Fl. 1. 446. Eat. & Wr. 372. Hornem. Fl. Dan. 13, **t. 2291**. Dietr. 3. 179. Seem. Bot. Herald, 29, 51 & 56. Lange, Pl. Groenl. 135. Rothr. Fl. Alask. 445. Watson, Rev. Pot. 559.

P. nana. Willd.; Schlecht. in Mag. Berl. 7. 296. Lehm. Monog. Pot. 181, **t. 17** (Spreng. Neue Entdeck. 2. 298); Hook. Fl. Bor.-Am. 1. 194. Spreng. Syst. 2. 541. Seringe, DC. Prodr. 2. 573. Don, Mill. 2. 550. Hook. & Arn. Bot. Beechey, 123. Torr. & Gray, Fl. 1. 441. Eat. & Wr. 372. Dietr. 3. 179. Ledeb. Fl. Ross. 2. 56. Seller, Ann. & Mag. Nat. Hist. 1. 16. 170. Seem. Bot. Herald, 29 & 55. Durand, Pl. Kane. in Journ. Acad. Philad. 1856, 190. Hook. f. in Journ. Linn. Soc. 1. 121. Rothr. Fl. Alask. 445.

P. verna. Hook. in Scoresby's Greenland, 431.

P. Grœnlandica. R. Brown, in Ross's Voy. 142.

P. frigida ? Greville, Mem. Soc. Wern. 3. 430. Durand, Kane's Exped. 2. 454.

P. nivea, var. *concolor.* R. Br. in Parry's 1st Voy. 277. Hook. in Parry's 2d Voy. 395. Torr. & Gray, Fl. 1. 441. Durand, Pl. Kane. l. c. 190.

P. Fragaria, var. *emarginata.* Seringe, DC. Prodr. 2. 586.

P. nivea, var. *arctica.* Lehm. Rev. Pot. 167, in part.

P. nivea, var. *Vahliana.* Durand, Kane's Exped. 2. 453.

P. nivea, var. *hirsuta.* Durand, Pl. Kane. l. c. 190; Pl. Hayes, Proc. Acad. Philad. 1863, 94.

P. fragiformis. Willd.; Schlecht. in Mag. Berl. 7. 294. See syn. in Ledeb. Fl. Ross. 2. 59; Trautv. & Meyer, Fl. Ochot. 33; Regel & Tiling, Fl. Ajan. 85. — Lehm. Monog. Pot. 163, **t. 15** (Spreng. Neue Entdeck. 2. 298); Hook. Fl. Bor.-Am. 1. 194; Rev. Pot. 155. Spreng. Syst. 2. 540. Seringe, DC. Prodr. 2. 586. Don, Mill. 2. 550. Eat. & Wr. 372. Dietr. 3. 178. Hook. f. Arct. Pl. 290. Watson, Rev. Pot. 559. Referred with *P. gelida* to *P. grandiflora*, Linn., by Maximowicz, Bull. Acad. Petersb. 19. 167 (Mélange Biol. 9. 161).

Var. **villosa.** Regel & Tiling, l. c. Watson, Rev. Pot. 559.

P. villosa. Pallas; Pursh, 353. Lehm. Monog. Pot. 166, t. **16**; Hook. Fl. Bor.-Am. 1. 194; Rev. Pot. 171. Spreng. Syst. 2. 540. Seringe, DC. Prodr. 2. 573. Cham. & Schlecht. in Linnæa, 2. 22. Bongard, Veg. Sitch. 132. Don, Mill. 2. 550. Hook. & Arn. Bot. Beechey, 123. Torr. & Gray, Fl. 1. 442. Eat. & Wr. 372. Dietr. Syn. 3. 178. Ledeb. Fl. Ross. 2. 58. Presl, Epimel. Bot. 198. Seem. Bot. Herald, 29. Hook. f. Arct. Pl. 290. Rothr. Fl. Alask. 445.

P. lucida. Willd.; Schlecht. in Mag. Berl. 7. 296.

P. frigida. Villars, Fl. Delph. 3. 563. See syn. in Lehm. Rev. Pot. 158. — Hook. f. Arct. Pl. 290 & 326. Gray, Manual, 154. Watson, Rev. Pot. 560.

P. minima, Hall. f., var. *Robbinsiana.* Torr. & Gray, Fl. 1. 441. Lehm. Rev. Pot. 159.

P. minima. Gray, Manual, 1 ed. 122. Wood, Cl.-Book, 342; Bot. & Fl. 107.

P. fruticosa. Linn. Sp. 495. See syn. in Ledeb. Fl. Ross. 2. 61; Nestler, Monog. Pot. 67; Lehm. Rev. Pot. 16. — Michx. Fl. 1. 304. Pursh, 355. James, Cat. 182; Long's Exp. 2. 215. Torrey, Fl. U. S. 497; Ann. Lyc. N. Y. 2. 197; Fl. N. Y. 1. 210; Frem. Rep. 89; Bot. Wilkes, 289. Spreng. Syst. 2. 533. Hook. Fl. Bor.-Am. 1. 186. Beck, Bot. 107. Nutt. in Journ. Acad. Philad. 7. 20. Hook. & Arn. Bot. Beechey, 123. Torr. & Gray, Fl. 1. 445. Eat. & Wr. 373. Seem. Bot. Herald, 29 & 51. Richard. Arct. Exp. 427. Engelm. Pl. Upp. Miss. 191. Hook. f. Journ. Linn. Soc. 1. 124; Arct. Pl. 290. Pl. Bourgeau, 256 & 262. Regel, Gart. Fl. 9, t. **278**. Gray, Proc. Acad. Philad. 1863, 61; Manual, 155. Rothr. Fl. Alask. 445; Pl. Wheeler, 37. Porter, Hayd. Rep. 1870, 475; 1871, 482; Fl. Col. 38. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 89; Rev. Pot. 561. Coulter, Hayd. Rep. 1872, 765. Brew. & Wats. Bot. Calif. 1. 180.

P. fruticosa, var. *Americana.* Marshall, Arbust. 109.

P. floribunda. Pursh, 355. Bigel. Fl. Bost. 2 ed. 203. Don, Mill. 2. 561.

Var. **parvifolia.** Watson, Rev. Pot. 561; Pl. Wheeler, 8 (as var. *alpina*).

P. gelida. C. A. Meyer, Ind. Pl. Cauc. 167. See syn. in Ledeb. Fl. Ross. 2. 59; Lehm. Rev. Pot. 154; Walp. Rep. 2. 26. — Watson, Rev. Pot. 559. Brew. & Wats. Bot. Calif. 1. 180. Referred to *P. grandiflora,* Linn., by Maximowicz in Bull. Acad. Petersb. 19. 167, with *P. fragiformis.*

P. flabellifolia. Hook.; Torr. & Gray, Fl. 1. 442. Walp. Rep. 2. 34. Dietr. 3. 183. Lehm. Rev. Pot. 153, t. **51**. Newberry, Pac. R. Rep. 6. 72.

P. glandulosa. Lindl. Bot. Reg. 19, t. **1583** (Litt.-Ber. zu Linnæa, 1835, 13). Hook. & Arn. Bot. Beechey, 338. Torr. & Gray, Fl. 1. 446. Walp. Rep. 2. 35. Dietr. 3. 187. Engelm. Pl. Upp. Miss. 191. Lehm. Rev. Pot. 48. Torrey, Pac. R. Rep. 4. 84; Mex. Bound. 64. Newberry, Pac. R. Rep. 6. 72. Boland. Cat. 12. Watson, King's Rep. 5. 89; Rev. Pot. 552; Pl. Wheeler, 8. Porter, Hayd. Rep. 1871, 482; Fl. Col. 36. Gray, Proc. Am. Acad. 8. 381. Coulter, Hayd. Rep. 1872, 765. Rothr. Pl. Wheeler, 37. Brew. & Wats. Bot. Calif. 1. 178.

P. arguta. Lehm. in Hook. Fl. Bor.-Am. 1. 186, in part. Nutt. in Journ. Acad. Philad. 7. 21.

P. fissa. Nutt.; Torr. & Gray, Fl. 1. 446. Walp. Rep. 2. 35. Dietr. 3. 187. Hook. in Lond. Journ. Bot. 6. 220. Gray, Pl. Fendl. 41; Am. Journ. Sci. 2. 33. 411; Proc. Acad. Philad. 1863, 61. Anderson, Cat. Pl. Nev. 120. Porter, Hayd. Rep. 1871, 482.

P. Wrangeliana. Fisch. & Meyer, Ind. Sem. Petrop. 1840, 54 (Litt.-Ber. zu Linnæa, 1840, 118). Walp. Rep. 2. 35. Lehm. Rev. Pot. 49, t. **19**.

P. rupestris. Presl, Epimel. Bot. 198.

? *P. rivalis.* Torrey, Pac. R. Rep. 4. 84.

Var. incisa. Lindl. Bot. Reg. 13, t. **1973.**

Var. Nevadensis. Watson, Bot. Calif. 1. 176.

P. glandulosa. Watson, Rev. Pot. 552, in part.

P. gracilis. Dougl.; Hook. Bot. Mag. t. **2984**; Fl. Bor.-Am. 1. 192. Don, Mill. 2. 554. Torr. & Gray, Fl. 1. 440. Eat. & Wr. 373. Walp. Rep. 2. 33. Dietr. 3. 182. Torrey, Frem. Rep. 89. Lehm. Rev. Pot. 107. Cooper, Pac. R. Rep. 12. 52. Watson, King's Rep. 5. 88; Rev. Pot. 557; Pl. Wheeler, 8. Porter, Hayd. Rep. 1871, 482; Fl. Col. 37. Gray, Proc. Am. Acad. 8. 381. Coulter, Hayd. Rep. 1872, 765. Rothr. Pl. Wheeler, 37. Brew. & Wats. Bot. Calif. 1. 179.

P. Blaschkeana. Turcz.; Lehm. in Otto, Gartenz. 9. 506; Ind. Sem. h. Hamb. 1853, Add. 9.; Rev. Pot. 107, t. **64.**

P. nivea, var. Pl. Bourgeau, 256.

P. fastigiata ? Gray, Proc. Acad. Philad. 1863, 61.

Var. flabelliformis. Torr. & Gray, Fl. 1. 440. Newberry, Pac. R. Rep. 6. 72. Cooper, same, 12. 59. Durand, Fl. Utah, 163. Watson, King's Rep. 5. 88; Rev. Pot. 557. Torrey, Bot. Wilkes, 289. Brew. & Wats. Bot. Calif. 1. 179.

P. flabelliformis. Lehm.; Nov. Stirp. Pug. 2. 12; Hook. Fl. Bor.-Am. 1. 192, t. **66**; Monog. Pot. Suppl. 13, t. **6.** Don, Mill. 2. 554. Eat. & Wr. 373. Hook. in Lond. Journ. Bot. 6. 220. Pl. Bourgeau, 256. Porter, Hayd. Rep. 1871, 482. Coulter, same, 1872, 765.

Var. fastigiata. Watson, Rev. Pot. 557. Brew. & Wats. Bot. Calif. 1. 179.

P. fastigiata. Nutt.; Torr. & Gray, Fl. 1. 440. Walp. Rep. 2. 33. Dietr. 3. 182. Gray, Pl. Fendl. 42. Porter, Hayd. Rep. 1870, 475.

P. elopetala. Lehm. Rev. Pot. 78, in part.

P. concinna ? Gray, Am. Journ. Sci. 2. 33. 411.

Var. rigida. Watson, Rev. Pot. 557; Pl. Wheeler, 8. Porter, Fl. Col. 37. Brew. & Wats. Bot. Calif. 1. 179.

P. recta ? Nutt. Genera, 1. 310. Eat. & Wr. 373. Wood, Cl.-Book, 343.

P. chrysantha. Lehm. in Hook. Fl. 1. 193. Don, l. c. Eat. & Wr. 373.

P. rigida. Nutt. in Journ. Acad. Philad. 7. 20. Torr. & Gray, Fl. 1. 440. Walp. Rep. 2. 33. Engelm. Pl. Upp. Miss. 191. Newberry, Pac. R. Rep. 6. 72. Anderson, Cat. Pl. Nev. 120.

P. Nuttallii. Lehm. Ind. Sem. h. Hamb. 1852, Add. 12 (Ann. Sci. Nat. 3. 19. 364); Otto, Gartenz. 8. 373; Rev. Pot. 89, t. **33.** Watson, King's Rep. 5. 88. Porter, Hayd. Rep. 1871, 482.

? *P. digitato-flabellata.* Braun & Bouché, Ind. Sem. h. Berl. 1851. Walp. Ann. 7. 866. Watson, Rev. Pot. 563.

P. Grayi. Watson, Rev. Pot. 560. Porter, Fl. Col. 37. Brew. & Wats. Bot. Calif. 1. 179.

P. Hippiana. Lehm. Nov. Stirp. Pug. 2. 7; Hook. Fl. Bor.-Am. 1. 188, t. **64**; Rev. Pot. 62. Don, Mill. 2. 558. Porter, Hayd. Rep. 1870, 475; Fl. Col. 36. Watson, Rev. Pot. 555. Rothr. Pl. Wheeler, 37.

P. leucophylla. Torrey, Ann. Lyc. N. Y. 2. 197. Eat. & Wr. 373.

P. Pennsylvanica, var. *Hippiana.* Torr. & Gray, Fl. 1. 438. Torrey, Pac. R. Rep. 4. 84. Gray, Proc. Acad. Philad. 1863, 61.

P. diffusa. Torrey, Sitgr. Rep. 159.

Var. pulcherrima. Watson, Rev. Pot. 555.

P. pulcherrima. Lehm. Nov. Stirp. Pug. 2. 10; Hook. Fl. Bor.-Am. 1. 190; Rev. Pot. 69, t. **28.** Don, Mill. 2. 556. Eat. & Wr. 374. Watson, King's Rep. 5. 87. Porter, Hayd. Rep. 1871, 482. Coulter, same, 765.

P. Pennsylvanica, var. *pulcherrima*. Torr. & Gray, Fl. 1. 438.

P. diffusa. Gray, Pl. Fendl. 42. Torrey, Pac. R. Rep. 4. 84.

P. Hippiana, var. *diffusa*. Lehm. Ind. Sem. h. Hamb. 1849, Add. 8 (Ann. Sci. Nat. 3. 12. 347); Rev. Pot. 62. Walp. Ann. 2. 480.

P. rubricaulis. Pl. Bourgeau, 256.

P. Hookeriana. Lehm. Ind. Sem. h. Hamb. 1849, Add. 10 (Ann. Sci. Nat. 3. 12. 353); Nov. Stirp. Pug. 9. 18; Rev. Pot. 103, **t. 55**. Walp. Ann. 2. 509. Watson, Rev. Pot. 554.

P. humifusa. Nutt. Genera, 1. 310. James, Cat. 182. Torrey, Ann. Lyc. N. Y. 2. 197. Seringe, DC. Prodr. 2. 574. Eat. & Wr. 374. Watson, Rev. Pot. 558. Porter, Fl. Col. 37. Rothr. Pl. Wheeler, 37.

P. concinna. Richard. Frankl. Journ. 20. Lehm. Monog. Pot. Suppl. 16, **t. 7**; Nov. Stirp. Pug. 2. 13; Hook. Fl. Bor.-Am. 1. 193, **t. 67**; Rev. Pot. 112. Don, Mill. 2. 554. Torr. & Gray, Fl. 1. 443. Eat. & Wr. 373. Walp. Rep. 2. 34. Dietr. 3. 183. Gray, Am. Journ. Sci. 2. 33. 411; Proc. Acad. Philad. 1863, 61. Pl. Bourgeau, 256.

P. canescens. Spreng. Syst. 2. 537, in part.

P. pulchella. Spreng. Syst. 4². 199.

Tormentilla humifusa. Don, Mill. 2. 562.

P. concinna, var. *humifusa*. Lehm. Rev. Pot. 112.

P. maculata. Pourret, Act. Toloss. 3. 316. See syn. in Lehm. Rev. Pot. 119; Hook. f. Arct. Pl. 290 & 326 (under *P. verna*). — E. Meyer, Pl. Lab. 75. Lange, Pl. Groenl. 135. Watson, Rev. Pot. 559.

P. Salisburgensis. Haenke; Jacq. Coll. 2. 68; Icon. Rar. 3, **t. 490**. Torr. & Gray, Fl. 1. 440.

P. opaca. Pursh, 355, not Linn. Meyer, Pl. Lab. 75. Lehm. in Hook. Fl. 1. 191. Schlecht. in Linnæa, 10. 95. Torr. & Gray, Fl. 1. 191. Eat. & Wr. 373.

P. aurea. Oeder, Fl. Dan. **t. 114**, not Linn. Schrank, Pfl. Lab. 27.

P. aurea, var. *β*. Schrank, l. c. Durand, Pl. Kane. in Journ. Acad. Philad. 1856, 191 (Kane's Exped. 2. 455).

P. crocea, Haller. Hook. f. in Journ. Linn. Soc. 1. 116.

P. nemoralis. Nestler, Monog. 65. See syn. in Ledeb. Fl. Ross. 2. 51; Lehm. Rev. Pot. 179 (under *P. procumbens*). — Torr. & Gray, Fl. 1. 444. Watson, Rev. Pot. 563. Perhaps not American.

P. nivea. Linn. Spec. 499. See syn. in Ledeb. Fl. Ross. 2. 57; Lehm. Rev. Pot. 166; Hook. f. Arct. Pl. 290 & 325. — Vahl, Fl. Dan. **t. 1035**. Pursh, 353. Schrank, Pfl. Lab. 27. Lehm. Monog. Pot. 73; Hook. Fl. Bor.-Am. 1. 95. Richard. Frankl. Journ. 20. Hook. in Trans. Linn. Soc. 14. 372. Seringe, DC. Prodr. 2. 572. Cham. & Schlecht. in Linnæa, 2. 21. Meyer, Fl. Lab. 74. Torr. & Gray, Fl. 1. 441. Eat. & Wr. 372. Seem. Bot. Herald, 52. Durand, Pl. Kane. in Journ. Acad. Philad. 1856, 190. Hook. f. in Journ. Linn. Soc. 1. 116 & 121. Dickie, same, 3. 111 & 11. 33. Lange, Pl. Groenl. 135. Gray, Am. Journ. Sci. 2. 33. 411; Proc. Acad. Philad. 1863, 61. Rothr. Fl. Alask. 445; Pl. Wheeler, 37. Porter, Hayd. Rep. 1870, 475; Fl. Col. 37. Watson, King's Rep. 5. 87; Rev. Pot. 558.

Var. **Vahliana**. Seem. Bot. Herald, 29.

P. hirsuta. Vahl; Hornem. in Fl. Œcon. 2 ed. 500; Fl. Dan. **t. 1390**. Seringe, DC. Prodr. 2. 573.

P. Vahliana. Lehm. Monog. Pot. 172; Hook. Fl. Bor.-Am. 1. 194; Rev. Pot. 170, with syn. Spreng. Syst. 2. 541. Eat. & Wr. 372. Seem. Bot. Herald, 51. Lange, Pl. Groenl. 135.

P. Jamesoniana. Greville, Mem. Soc. Wern. 3. 417, **t. 20.** Seringe, l. c. 2. 586.
P. nivea, var. γ. Torr. & Gray, Fl. 1. 441.

Var. macrophylla. Lehm. Nov. Stirp. Pug. 9. 57. Seringe, DC. Prodr. 2. 571, excl. syn. Hook. Bot. Mag. **t. 2982.**

P. nivea. R. Brown, Parry's 1st Voy. 277 (Regensb. Flora, 7², Beil. 88). Lodd. Bot. Cab. **t. 460.**

Var. prostrata. Lehm. Nov. Stirp. Pug. 9. 69; Monog. Pot. 184; Rev. Pot. 169. Seringe, DC. Prodr. 2. 572.

P. prostrata. Rotboell, Skrift. 10. 453.

Var. pentaphylla. Lehm. Nov. Stirp. Pug. 9. 69; Hook. Fl. Bor.-Am. 1. 195; Rev. Pot. 169.

Var. dissecta. Watson, Rev. Pot. 559.

P. Norvegica. Linn. Spec. 449. See syn. in Ledeb. Fl. Ross. 2. 36; Lehm. Rev. Pot. 198. — Oeder, Fl. Dan. **t. 171.** Michx. Fl. 1. 302. Persoon, 2. 56. Ait. f. Hort. Kew. 3. 279. Pursh, 355. Bigel. Fl. Bost. 125. Nestler, Monog. 66. Elliott, 1. 573. Lehm. Monog. 153; Hook. Fl. Bor.-Am. 1. 193. Torrey, Fl. U. S. 496; Fl. N. Y. 1. 207. Cham. & Schlecht. in Linnæa, 2. 26. Bongard, Veg. Sitch. 132. Schlecht. in Linnæa, 10. 98. Beck, Bot. 106. Darling. Fl. Cestr. 303. Torr. & Gray, Fl. 1. 436. Eat. & Wr. 372. Hook. in Lond. Journ. Bot. 6. 219. Gray, Pl. Fendl. 42; Pac. R. Rep. 12. 43; Manual, 154. Seem. Bot. Herald, 51. Engelm. Pl. Upp. Miss. 191. Cooper, Pac. R. Rep. 12. 59. Chapman, 124. Pl. Bourgeau, 256. Porter, Hayd. Rep. 1870, 475; 1871, 481; Fl. Col. 36. Watson, King's Rep. 5. 85; Rev. Pot. 552. Coulter, Hayd. Rep. 1872, 765.

P. Labradorica. Lehm. Ind. Sem. h. Hamb. 1849, Add. 12 (Ann. Sci. Nat. 3. 12. 355); Nov. Stirp. Pug. 9. 21; Rev. Pot. 201. Walp. Ann. 2. 516.

Var. hirsuta. Torr. & Gray, Fl. 1. 436. Lehm. Nov. Stirp. Pug. 9. 75; Rev. Pot. 199.

P. Monspeliensis. Linn. Spec. 499. Willd. Spec. 2. 1109. Persoon, 2. 56.

P. hirsuta. Michx. Fl. 1. 302. Poir. Dict. 5. 596. Persoon, 2. 55. Pursh, 353. Nestler, Monog. Pot. 67. Lehm. Monog. Pot. 155, **t. 9, f. 1**; Hook. Fl. Bor.-Am. 1. 193. Torrey, Fl. U. S. 495. Spreng. Syst. 2. 540. Don, Mill. 2. 551. Beck, Bot. 106. Eat. & Wr. 372.

P. Morisoni. DC. Cat. h. Monsp. 135. Seringe, DC. Prodr. 2. 573.

P. palustris. Scop. Fl. Carn. 2 ed. 1. 359. See syn. in Lehm. Rev. Pot. 73; Ledeb. Fl. Ross. 2. 62, and Trautv. & Meyer, Fl. Ochot. 34 (under *Comarum*). — Torrey, Fl. U. S. 498; Bot. Wilkes, 290. Spreng. Syst. 2. 536. Seringe, DC. Prodr. 2. 583. Hook. Fl. Bor.-Am. 1. 187. Meyer, Pl. Lab. 76. Rothr. Fl. Alask. 445. Gray, Manual, 155. Watson, Rev. Pot. 560. Brew. & Wats. Bot. Calif. 1. 180.

Comarum palustre. Linn. Spec. 502. Muell. Fl. Dan. **t. 636.** Michx. Fl. 1. 302. Poir. Suppl. 2. 316. Pursh, 156. Bigel. Fl. Bost. 123. Nutt. Genera, 1. 311. Schrank, Pfl. Lab. 28. Richard. Frankl. Journ. 12. Don, Mill. 2. 562. Schlecht. in Linnæa, 10. 98. Torr. & Gray, Fl. 1. 447. Eat. & Wr. 204. Torrey, Fl. N. Y. 1. 211. Gray, Manual, 1 ed. 123. Seem. Bot. Herald, 29. Newberry, Pac. R. Rep. 6. 71. Cooper, same, 12. 59. Lange, Pl. Groenl. 134. Hook. f. Arct. Pl. 290. Irmisch, Bot. Zeit. 19. 115. Pl. Bourgeau, 256.

P. Comarum. Nestler, Monog. Pot. 30. Seringe, DC. Prodr. 2. 583. Cham. & Schlecht. in Linnæa, 2. 25. Bongard, Veg. Sitch. 132. Beck, Bot. 108.

Comarum digitatum & angustifolium. Raf. Fl. Tellur. 2. 55 & 56.

P. Pennsylvanica. Linn. Mant. 76. See syn. in Ledeb. Fl. Ross. 2. 40; Lehm. Rev. Pot. 57. — Ait. Hort. Kew. 2. 214. Willd. Spec. 1099. Michx. Fl. 1. 304. Poir. Dict. 5. 588. Persoon, 2. 54. Pursh, 356. Nestler, Monog. Pot. 36. Lehm. Monog. Pot. 55; Hook. Fl. Bor.-Am. 1. 187. Torrey, Am. Journ. Sci. 1. 4. 64; Fl. U. S. 499. Seringe, DC. Prodr. 2. 581. Spreng. Syst. 2. 533. Beck, Bot. 107. Torr. & Gray, Fl. 1. 438, excl. vars. δ & ε. Eat. & Wr. 373. Walp. Rep. 2. 32. Gray, Pl. Fendl. 42; Pac. R. Rep. 12. 43; Manual, 154. Parry, Pl. Minn. 612. Pl. Bourgeau, 256. Rothr. Fl. Alask. 445; Pl. Wheeler, 37. Regel & Herder, Bull. Soc. Mosc. 1. 474. Porter, Hayd. Rep. 1871, 481. Watson, Rev. Pot. 553; Pl. Wheeler, 8. Referred to *P. sericea* by Hook. f. in Arct. Pl. 290 & 325.

P. Missourica. Schrad. Ind. Sem. h. Gœtt. (Litt.-Ber. zu Linnæa, 8. 26). Lindl. Bot. Reg. 17, **t. 1412.** Don, Mill. 2. 557.

Var. **strigosa.** Pursh, 356. Lehm. ll. cc. Torr. & Gray, Fl. 1. 438. Engelm. Pl. Upp. Miss. 191. Gray, Am. Journ. Sci. 2. 33. 411; Proc. Acad. Philad. 1863, 61. Porter, Hayd. Rep. 1871, 481; Fl. Col. 36. Watson, Rev. Pot. 554.

Var. **glabrata.** Watson, l. c.

P. sericea, var. *glabrata.* Lehm. in Hook. Fl. Bor.-Am. 1. 189; Rev. Pot. 34. Don, Mill. 2. 560. Torr. & Gray, Fl. 1. 437. Torrey, Frem. Rep. 89. Seem. Bot. Herald, 29.

P. Pennsylvanica. Hook. & Arn. Bot. Beechey, 123.

P. Pennsylvanica, var. *strigosa.* Watson, King's Rep. 5. 86.

Var. **arachnoidea.** Lehm. Nov. Stirp. Pug. 9. 41; Rev. Pot. 59.

P. Pennsylvanica, var. *conferta.* Gray, Pl. Fendl. 42.

Var. **bipinnatifida.** Torr. & Gray, Fl. 1. 438. Torrey, Nicol. Rep. 149. Hook. in Lond. Journ. Bot. 6. 220. Lehm. Rev. Pot. 60.

P. arguta. Lehm. Monog. Pot. 62, not Pursh. Cham. & Schlecht. in Linnæa, 2. 26. Spreng. Syst. 2. 534.

P. Pennsylvanica, var. *arguta.* Seringe, DC. Prodr. 2. 581.

P. bipinnatifida. Dougl.; Hook. Fl. Bor.-Am. 1. 188. Don, Mill. 2. 558. Eat. & Wr. 374.

P. Plattensis. Nutt.; Torr. & Gray, Fl. 1. 439. Walp. Rep. 2. 32. Dietr. 3. 187. Lehm. Rev. Pot. 28, **t. 6.** Gray, Proc. Acad. Philad. 1863, 61. Watson, Rev. Pot. 556. Porter, Fl. Col. 36. Rothr. Pl. Wheeler, 37. Brew. & Wats. Bot. Calif. 179.

P. sericea, var. β. Pl. Bourgeau, 256.

? *P. diversifolia*, var. *pinnatisecta.* Watson, King's Rep. 5. 87.

P. pulchella. R. Brown, Ross's Voy. 142; Parry's 1st Voy. 277 (Regensb. Flora, 7², Beil. 87). Hook. in Parry's 2d Voy. 395. Lehm. Monog. Pot. Suppl. 14, **t. 7**; Nov. Stirp. Pug. 3. 25; Hook. Fl. Bor.-Am. 1. 191; Rev. Pot. 36. Spreng. Syst. 4². 198. Seringe, DC. Prodr. 2. 582. Hornem. Fl. Dan. 13, **t. 2234.** Don, Mill. 2. 586. Torr. & Gray, Fl. 1. 439. Eat. & Wr. 374. Walp. Rep. 2. 33. Dietr. 3. 185. Seem. Bot. Herald, 29. Lange, Pl. Groenl. 134. Durand, Pl. Kane. in Journ. Acad. Philad. 1856, 190 (Kane's Exped. 2. 453). Watson, Rev. Pot. 554.

P. sericea. Greville, Mem. Soc. Wern. 3. 430. Eat. & Wr. 374.

P. nivea, var. *pulchella.* Durand, Pl. Hayes, Proc. Acad. Philad. 1863, 94.

P. rivalis. Nutt.; Torr. & Gray, Fl. 1. 437. Walp. Rep. 2. 31; Ann. 2. 515. Dietr. 3. 178. Lehm. Ind. Sem. h. Hamb. 1851, Add. 10 (Linnæa, 25. 313); Otto, Gartenz. 7. 350; Rev. Pot. 196, **t. 61.** Gray, Ives's Rep. 11. Boland. Cat. 12. Anderson, Cat. Pl. Nev. 120. Watson, Rev. Pot. 552. Porter, Fl. Col. 16. Rothr. Pl. Wheeler, 37. Brew. & Wats. Bot. Calif. 1. 178.

Var. millegrana. Watson, Rev. Pot. 553. Torrey, Bot. Wilkes, 289. Brew. & Wats. Bot. Calif. 178.

P. millegrana. Engelm.; Lehm. Ind. Sem. h. Hamb. 1849, Add. 11 (Ann. Sci. Nat. 3. 12. 354); Nov. Stirp. Pug. 9. 22; Rev. Pot. 202. Walp. Ann. 2. 517. Watson, King's Rep. 5. 85. Porter, Hayd. Rep. 1871, 481; Coulter, same, 1872, 765.

Var. pentandra. Watson, Rev. Pot. 553.

P. pentandra. Engelm.; Torr. & Gray, Fl. 1. 447. Walp. Rep. 2. 35. Dietr. 3. 184. Lehm. Nov. Stirp. Pug. 9. 75; Rev. Pot. 197, t. **62.**

P. supina. Linn. Spec. 497. See syn. in Ledeb. Fl. Ross. 2. 35; Lehm. Rev. Pot. 193. — Michx. Fl. 1. 304. Pursh, 356. Torrey, Fl. U. S. 498; Ann. Lyc. N. Y. 2. 197. Spreng. Syst. 2. 535. Seringe, DC. Prodr. 2. 580. Beck, Am. Journ. Sci. 1. 14. 114; Bot. 107. Hook. Fl. Bor.-Am. 1. 187; Comp. Bot. Mag. 1. 25. Eat. & Wr. 373. Nees, Pl. Neuwied, 8. Maximowicz, Fl. Amur. 97. Pl. Bourgeau, 256. Watson, Rev. Pot. 553.

P. paradoxa. Nutt.; Torr. & Gray, Fl. 1. 437. Walp. Rep. 2. 32. Torrey, Nicol. Rep. 149; Mex. Bound. 64. Gray, Pl. Wright. 1. 68 & 2. 55; Pac. R. Rep. 12. 43; Manual, 154. Lehm. Nov. Stirp. Pug. 9. 74; Rev. Pot. 194, t. **62.** Engelm. Pl. Upp. Miss. 191. Paine, Cat. Pl. Oneida, 186. Buchan, Can. Naturalist, 14. 300. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 324.

Var. Nicolletii. Watson, Rev. Pot. 553.

P. Thurberi. Gray, Pl. Thurb. 318. Lehm. Ind. Sem. h. Hamb. 1854, 10 (Ann. Sci. Nat. 4. 2. 376); Otto's Gartenz. 10. 459; Rev. Pot. 92. Torrey, Mex. Bound. 64. Walp. Ann. 7. 868. Watson, Rev. Pot. 561.

P. tridentata. Solander, Ait. Hort. Kew. 2. 216, t. **9.** See syn. in Lehm. Rev. Pot. 22. — Vahl, Symb. 2. 59. Willd. Sp. 2. 1110. Michx. Fl. 1. 302. Poir. Dict. 5. 601. Persoon, 2. 56. Pursh, 353. Nestler, Monog. Pot. 66. Lehm. Monog. Pot. 190; Hook. Fl. Bor.-Am. 1. 195; Rev. Pot. 22. Richard. Frankl. Journ. 12. Bigel. Fl. Bost. 2 ed. 204. Torrey, Fl. U. S. 495; Fl. N. Y. 1. 207. Spreng. Syst. 2. 514. Seringe, DC. Prodr. 2. 585. Don, Mill. 2. 552. Beck, Bot. 106. Torr. & Gray, Fl. 1. 445. Eat. & Wr. 372. Hook. f. in Journ. Linn. Soc. 5. 83. Durand, Pl. Kane. in Journ. Acad. Philad. 1856, 191 (Kane's Exped. 2. 454). Lange, Pl. Groenl. 135. Chapman, 124. Pl. Bourgeau, 256. Matthew, Fl. Acad. 15. Gray, Manual, 124. Watson, Rev. Pot. 562.

P. retusa. Mueller, Fl. Dan. 5, t. **799.** Hornem. Fl. Dan. 11, t. **1875.** Don, Mill. 2. 550.

P. Wheeleri. Watson, Proc. Am. Acad. 11. 148. Brew. & Wats. Bot. Calif. 1. 179.

RIDDELLIÆ.

P. arguta; glandulosa, Pennsylvanica.
aurea; maculata.
Bigelowiana; arguta.
bipinnatifida; Pennsylvanica.
Blaschkeana; gracilis.
canescens; humifusa.
Caroliniana; Canadensis.
chrysantha; gracilis.
Comarum; palustris.
concinna; gracilis, humifusa.
congesta; Horkelia congesta.
confertiflora; arguta.
crocea; maculata.
cuneata; Horkelia Californica.
depauperata; Ivesia depauperata.
diffusa; Hippiana.
digitato-flabellata; gracilis.
diversifolia; dissecta, Plattensis.
Drummondii; dissecta.
Durandii; Fragaria Indica.
Egedii; Anserina.
fastigiata; gracilis.
ferruginea; arguta.
fissa; glandulosa.

P. flabellifolia; gelida.
flabelliformis; gracilis.
floribunda; fruticosa.
frigida & *Fragaria*; emarginata.
glaucophylla; dissecta.
Gordoni; Ivesia Gordoni.
gossypina; effusa.
grandiflora; fragiformis, gelida.
Grœnlandica; emarginata.
hirsuta; nivea, Norvegica.
Jamesoniana; nivea.
Labradorica; Norvegica.
leucophylla; Hippiana.
lucida; fragiformis.
lycopodioides; Ivesia Gordoni.
millegrana; rivalis.
minima; frigida.
Missourica; Pennsylvanica.
Monspeliensis & *Morisoni*; Norvegica.
multijuga; Horkelia Californica.
nana; emarginata.
Newberryi; Ivesia gracilis.
nivalis; Geum Rossii.
nivea; emarginata, gracilis, pulchella.
Nuttallii & *olopetala*; gracilis.

P. opaca; maculata.
paradoxa; supina.
Pennsylvanica; arguta, Hippiana
pentandra; rivalis.
Pickeringii; Ivesia Pickeringii.
procumbens; nemoralis.
prostrata; nivea.
pulchella; humifusa.
pulcherrima; Hippiana.
pumila; Canadensis.
recta; gracilis.
retusa; tridentata.
rigida; gracilis.
rivalis; glandulosa.
rubricaulis; dissecta, Hippiana.
rupestris; glandulosa.
Salisburgensis; maculata.
santolinoides; Ivesia santolinoid
sarmentosa; Canadensis.
sericea; Pennsylvanica, Platt pulchella.
simplex; Canadensis.
Vahliana; nivea.
verna; emarginata, maculata.
villosa; fragiformis.
Wrangelliana; glandulosa.

POTERIUM annuum. Nutt.; Hook. Fl. Bor.-Am. 1. 198. Don, Mill. Eat. & Wr. 374. Benth. & Hook. Gen. Pl. 1. 624. Gray, Proc. Am. Acad: Brew. & Wats. Bot. Calif. 1. 186.

Sanguisorba annua. Torr. & Gray, Fl. 1. 429. Walp. Rep. 2. 44. Ho Lond. Journ. Bot. 6. 218. Benth. Pl. Hartw. 309. Torrey, Marcy's Rep. 285 Bot. Wilkes, 294. Engelm. Pl. Upp. Miss. 191. Gray, Pac. R. Rep. 12. 43. Y Fl. Texas, 253.

Poteridium annuum. Spach, Ann. Sci. Nat. 3. 5. 43.

Sanguisorba myriophylla. A. Braun & Bouché, Ind. Sem. h. Berol. 1867, 10 (Seem. Journ. Bot. 7. 203).

P. Canadense. Benth. & Hook. Gen. Pl. 1. 624. Gray, Manual, 5 ed. 150.

Sanguisorba Canadensis. Linn. Spec. 117. Ait. Hort. Kew. 1. 156. Willd. 1. 654. Michx. Fl. 1. 100. Persoon, 1. 141. Poir. Dict. 6. 498. Pursh Roem. & Schult. Syst. 3. 206. Elliott, 1. 206. Bigel. Fl. Bost. 2 ed. 62. T Fl. U. S. 176; Fl. N. Y. 1. 205. Spreng. Syst. 1. 433. DC. Prodr. 2. 594. Fl. Bor.-Am. 1. 198, excl. var. Don, Mill. 2. 594. Beck, Bot. 115. Spach Veg. 1. 486. Maund, Bot. Gard. 10, t. 442. Torr. & Gray, Fl. 1. 429, excl Dietr. 1. 439. Eat. & Wr. 410. Walp. Rep. 2. 44. Ledeb. Fl. Ross. 2. 28 var. Gray, Manual, 1 ed. 118. Seem. Bot. Herald, 29. Wood, Cl.-Book Rothr. Fl. Alask. 445. Maximowicz, in Bull. Acad. Petersb. 19. 159 (M Biol. 9. 151), excl. var.

S. media. Linn. Spec. 2 ed. 169. Ait. Hort. Kew. 1. 156. Lam. Ill. Willd. Spec. 1. 654; Enum. 163. Persoon, 1. 141. Poir. Suppl. 6. 498. 116. Roem. & Schult. Syst. 3. 206. Elliott, 1. 206. Torrey, Fl. U. S. 176. S

Syst. 1. 433. DC. Prodr. 2. 594. Turpin, Dict. Sci. Nat. 47. 278, t. **240**. Beck, Bot. 115. Eat. & Wr. 411. Dietr. 1. 439. Chapman, 122.

P. officinale. Benth. & Hook. Gen. Pl. 1. 624. See syn. in Ledeb. Fl. Ross. 2. 27, & Maxim. l. c. 161 (under *Sanguisorba*); Hook. f. Arct. Pl. 200 & 326. — Gray, Proc. Am. Acad. 7. 340 & 8. 381. Brew. & Wats. Bot. Calif. 1. 186.

Sanguisorba microcephala. Presl, Epimel. Bot. 202. Walp. Ann. 3. 855.

P. Sanguisorba, Linn. Hook. Fl. Bor.-Am. 1. 198. Torr. & Gray, Fl. 1. 429. Eat. & Wr. 374. Wood, Cl.-Book, 326. Gray, Manual, 680.

P. Sitchense.

Sanguisorba Canadensis. Cham. & Schlecht. in Linnæa, 2. 32. Bongard, Veg. Sitch. 133.

S. media. Hook. Fl. 1. 197. Don, Mill. 2. 594. Presl, Epimel. Bot. 202.

S. Canadensis, var. *latifolia.* Hook. Fl. Bor.-Am. 1. 198. Torr. & Gray, Fl. 1. 429. Ledeb. Fl. Ross. 2. 28.

S. Sitchensis. C. A. Meyer; Trautv. & Meyer, Fl. Ochot. 34.

S. Canadensis, var. *media.* Maximowicz, l. c. 151.

PRUNUS Americana. Marshall, Arbust. 111. Darlington, Ann. Lyc. N. Y. 3. 87, t. 1; Fl. Cestr. 287. Beck, Bot. 95. Torr. & Gray, Fl. 1. 407; Pac. R. Rep. 2. 164. Eat. & Wr. 377. Torrey, Fl. N. Y. 1. 194; Emory's Rep. 408; Pac. R. Rep. 4. 82. Emerson, Trees of Mass. 449. Hook. in Lond. Journ. Bot. 6. 217. Roem. Syn. Monogr. 3. 59. Gray, Pl. Fendl. 40; Manual, 148. Scheele, Roem. Texas, 430. Nutt. Sylva, 2. 19, t. **48**. Richard. Arct. Exped. 424. Parry, Pl. Minn. 611. Engelm. Pl. Upp. Miss. 190. Curtis, Bot. N. Car. 56. Lesqx. Fl. Ark. 358. Chapman, 119. Pl. Bourgeau, 256. Porter, Fl. Col. 33.

? *P. Mississippi.* Marshall, Arbust. 112.

P. spinosa. Walter, 146.

P. nigra. Ait. Hort. Kew. 2. 165. Willd. Spec. 2. 993. Poir. Dict. 5. 674. Persoon, 2. 35. Sims, Bot. Mag. t. **1117**. Pursh, 331. Torrey, Fl. U. S. 409. Spreng. Syst. 2. 477. Roem. Syn. Monog. 3. 59.

Cerasus nigra. Loisel. in Nouv. Duham. 5. 32. Seringe, DC. Prodr. 2. 538. Hook. Fl. Bor.-Am. 1. 167; Comp. Bot. Mag. 1. 24. Don, Mill. 2. 513. Beck, Bot. 96. Spach, Hist. Veg. 1. 399. Loud. Arb. 2. 704, f. **411, 412**.

P. hiemalis. Elliott, 1. 542.

Var. mollis. Torr. & Gray, Fl. 1. 407.

? *P. Canadensis.* Linn. Spec. 2 ed. 678. Willd. Spec. 2. 986. Poir. Dict. 5. 665. Persoon, 2. 34. Pursh, 330. Torrey, Fl. U. S. 468. Dietr. 3. 42. Suppressed by Torr. & Gray, Fl. 1. 408.

P. hiemalis. Michx. Fl. 1. 284. Poir. Dict. 5. 679. Persoon, 2. 35. Loisel. in Nouv. Duham. 5. 184. Spreng. Syst. 2. 477. Spach, Hist. Veg. 1. 398. Roem. Syn. Monog. 3. 59.

Cerasus Canadensis. Loisel. in Nouv. Duham. 5. 3. Seringe, DC. Prodr. 2. 539. Don, Mill. 2. 515. Beck, Bot. 97. Spach, Hist. Veg. 1. 417. Eat. & Wr. 189. Loud. Arb. 2. 713.

P. mollis. Torrey, Fl. U. S. 470. Beck, Bot. 95.

Cerasus hiemalis. Seringe, DC. Prodr. 2. 538. Hook. Fl. Bor.-Am. 1. 168. Beck, Bot. 96. Loud. Arb. 2. 704. Don, Mill. 2. 504.

Cerasus Americana. Hook. Comp. Bot. Mag. 1. 24.

Padus Canadensis. Roem. Syn. Monog. 3. 88.

P. Andersoni. Gray, Proc. Am. Acad. 7. 337 & 10. 70. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 79. Brew. & Wats. Bot. Calif. 1. 168.

P. Capollin. Zucc. Abhandl. Acad. Münch. 2. 345, **t. 8.** Roem. Syn. Monog. 3. 87. Torrey, Mex. Bound. 62.

P. Capuli. Cav.; Spreng. Syst. 2. 477. Schlecht. in Linnæa, 13. 89 & 404.

Cerasus Capollin. DC. Prodr. 2. 539. Benth. Pl. Hartw. 10. Torr. & Gray Fl. 1. 412. Gray, Pl. Wright. 2. 54.

Cerasus Capuli. Seringe, DC. Prodr. 2. 541. Don, Mill. 2. 516. Spach, His Veg. 1. 422.

P. Caroliniana. Ait. Hort. Kew. 2. 163. Willd. Spec. 2. 987. Poir. Dict. 5. 66 Persoon, 2. 34. Spreng. Neue Entdeck. 1. 304; Syst. 2. 478. Elliott, 1. 54 Audubon, Birds, **t. 159 & 190.** Schlecht. in Linnæa, 13. 89. Dietr. 3. 43. C tis, Bot. N. Car. 57. Chapman, 120. Wood, Bot. & Fl. 103. Gray, Hall's Texas, 9.

P. Carolina. Mill.; DuRoi, Harbk. 2. 198.

P. serratifolia. Marshall, Arbust. 114.

P. Lusitanica. Walter, 146.

Cerasus Caroliniana. Michx. Fl. 1. 285. Loisel. in Nouv. Duham. 5. 5. Mic f. Arb. Am. 3. 156, **t. 7.** Seringe, DC. Prodr. 2. 540. Don, Mill. 2. 516. Sp Hist. Veg. 1. 420. Torr. & Gray, Fl. 1. 411. Eat. & Wr. 190. Loud. Arb. 2. **f. 423.** Wood, Cl.-Book, 326.

Bumelia serrata. Pursh, 155.

Leptocarpa Caroliniana. Nutt. Sylva, 2. 18.

Chimanthus amygdalinus. Raf. Fl. Lud. 159.

Laurocerasus Caroliniana. Roem. Syn. Monog. 3. 90.

P. Chicasa. Michx. Fl. 1. 284. Poir. Dict. 5. 680. Persoon, 2. 35. Loise Nouv. Duham. 5. 183. Elliott, 1. 542. James, Cat. 182. Torrey, Ann. Lyc. N 2. 194; Pac. R. Rep. 4. 82. Spreng. Syst. 2. 476. Audubon, Birds, **t. 53.** Sp Hist. Veg. 1. 397. Darling. Fl. Cestr. 287. Torr. & Gray, Fl. 1. 407, excl. v Pac. R. Rep. 2. 164. Eat. & Wr. 377. Roem. Syn. Monog. 3. 58. Curtis, B N. Car. 56. Chapman, 119. Gray, Manual, 148; Hall's Pl. Texas, 9. Porter, Col. 33.

P. angustifolia. Marshall, Arbust. 111.

P. insititia. Walter, 146.

Cerasus Chicasa. Seringe, DC. Prodr. 2. 538. Hook. Fl. Bor.-Am. 1. 16 Comp. Bot. Mag. 1. 24. Don, Mill. 2. 514. Loud. Arb. 2. 705.

P. demissa. Walp. Rep. 2. 10. Dietr. 3. 43. Benth. Pl. Hartw. 307. Torre Mex. Bound. 63. Watson, King's Rep. 5. 80; Pl. Wheeler, 8. Porter, Hayd. Rep 1871, 481. Coulter, same, 1872, 764. Rothr. Pl. Wheeler, 37. Brandegee, Fl. S W. Col. 236. Brew. & Wats. Bot. Calif. 1. 167.

Cerasus serotina. Hook. Fl. Bor.-Am. 1. 169, in part.

Cerasus demissa. Nutt.; Torr. & Gray, Fl. 1. 411. Gray, Pl. Fendl. 40. Durand, Pl. Pratten. 87. Torrey, Pac. R. Rep. 4. 83. Newberry, same, 6. 73. Cooper, same, 12. 59.

Padus demissa. Roem. Syn. Monog. 3. 87.

Prunus Virginiana, var. *demissa.* Torrey, Bot. Wilkes, 284. Gray, Proc. Am. Acad. 8. 381.

P. DOMESTICA, Linn. Gray, Pl. Fendl. 40.

P. emarginata. Walp. Rep. 2. 9. Dietr. 3. 42. Loud. Arb. 2. 714. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 79. Torrey, Bot. Wilkes, 284. Brew. & Wats. Bot. Calif. 1. 167.

Cerasus emarginata. Dougl.; Hook. Fl. Bor.-Am. 1. 169. Don, Mill. 2. 515.

Torr. & Gray, Fl. 1. 410. Eat. & Wr. 189. Roem. Syn. Monog. 3. 79. Torrey, Pac. R. Rep. 4. 83. Boland. Proc. Calif. Acad. 3. 79.

Cerasus erecta. Presl, Epimel. Bot. 194. Walp. Ann. 3. 854.

Cerasus glandulosa. Kellogg, Proc. Calif. Acad. 1. 59.

Var. **mollis.** Brewer, Bot. Calif. 1. 167.

Cerasus mollis. Dougl.; Hook. Fl. Bor.-Am. 1. 169; Lond. Journ. Bot. 6. 217. Don, Mill. 2. 515. Torr. & Gray, Fl. 1. 410. Eat. & Wr. 189. Loud. Arb. 2. 714. Roem. Syn. Monog. 3. 79. Nutt. Sylva, 2. 14, **t. 46**. Richard. Arct. Exped. 425. Newberry, Pac. R. Rep. 6. 73. Cooper, same, 12. 29 & 59; Am. Naturalist, 3. 406. Gray, Proc. Am. Acad. 8. 381.

P. mollis. Walp. Rep. 2. 9. Dietr. 3. 42. Torrey, Bot. Wilkes, 284.

P. fasciculata. Gray, Proc. Am. Acad. 10. 70 & 71. Parry, Am. Naturalist, 9. 270. Brew. & Wats. Bot. Calif. 1. 168.

Emplectocladus fasciculatus. Torrey, Pl. Frem. 10, **t. 5** (Regensb. Flora, 36. 705); Proc. Am. Assoc. 4. 192. Walp. Ann. 4. 656. Gray, Ives's Rep. 11. Benth. & Hook. Gen. Pl. 1. 614.

P. minutiflora. Watson, King's Rep. 5. 420.

P. glandulosa. Torr. & Gray, Fl. 1. 408 & 696. Engelm. & Gray, Pl. Lindh. 35. Roem. Syn. Monog. 3. 36. Gray, Pl. Lindh. 186; Hall's Pl. Texas, 9; Proc. Am. Acad. 10. 71. Young, Fl. Texas, 252.

Amygdalus glandulosa. Hook. Icon. **t. 288.** Walp. Rep. 2. 8. Roem. Syn. Monog. 3. 14.

P. Texana. Dietr. 3. 45.

P. gracilis. Engelm. & Gray, Pl. Lindh. 35. Torrey, Pac. R. Rep. 4. 83. Gray, Hall's Pl. Texas, 9.

P. Chicasa, var. (?) *normalis.* Torr. & Gray, Fl. 1. 407. Roem. Syn. Monog. 3. 58.

P. ilicifolia. Walp. Rep. 2. 10. Dietr. 3. 43. Torrey, Mex. Bound. 63; Bot. Wilkes, 285. Boland. Cat. 10. Brew. & Wats. Bot. Calif. 1. 285.

Cerasus ilicifolia. Nutt.; Hook. & Arn. Bot. Beechey, 340, **t. 83.** Torr. & Gray, Fl. 1. 411. Torrey, Emory's Rep. 139; Pac. R. Rep. 4. 83. Nutt. Sylva, **2. 16, t. 47.** Paxton, Fl. Gard. 3. 44, **f. 254.** Boland. Proc. Calif. Acad. 3. 79 & **4. 22.** Garden, 1873, 131, **fig.**

Laurocerasus ilicifolia. Roem. Syn. Monog. 3. 92.

P. maritima. Wangenh. Amer. 103. Marsh. Arbust. 112. Willd. Enum. 1. 519. Pursh, 332. Poir. Suppl. 4. 584. Elliott, 1. 543. Torrey, Fl. U. S. 470; Fl. N. Y. 1. 194. Spreng. Syst. 2. 476. Seringe, DC. Prodr. 2. 533. Don, Mill. 2. 499. Beck, Bot. 95. Spach, Hist. Veg. 1. 397. Torr. & Gray, Fl. 1. 408. Eat. & Wr. 377. Loud. Arb. 2. 691. Emerson, Trees of Mass. 449. Roem. Syn. Monog. 3. 57. Gray, Manual, 148.

P. cerasifera. Ehrhart, Beitr. 4. 17. Willd. Arb. 250; Spec. 2. 997. Persoon, 2. 35. Spreng. Syst. 2. 476.

P. sphærocarpa. Michx. Fl. 1. 284. Poir. Dict. 5. 666. Persoon, 2. 35. Loisel. in Nouv. Duham. 5. 183.

P. pubescens. Pursh, 331. Poir. Suppl. 4. 583. Torrey, Fl. U. S. 469. Spreng. Syst. 2. 477. Eat. & Wr. 189. Roem. Syn. Monog. 3. 57.

P. littoralis. Bigelow, Fl. Bost. 2 ed. 193.

Cerasus pubescens. Seringe, DC. Prodr. 2. 538. Don, Mill. 2. 514. Beck, Bot. 96. Loud. Arb. 2. 705.

Cerasus cerasifera & littoralis. Eat. & Wr. 189.

Var. β. Torr. & Gray, Fl. 1. 408. Torrey, Fl. N. Y. 1. 195.

? *P. declinata.* Marshall, Arbust. 112.

P. pygmæa. Willd. Arb. 248; Spec. 2. 993; Enum. 1. 518. Poir. Dict. 5. Persoon, 2. 35. Pursh, 331. Torrey, Fl. U. S. 469. Spreng. Syst. 2. 477. Sp Hist. Veg. 1. 399. Roem. Syn. Monog. 3. 60.

P. acuminata. Michx. Fl. 1. 284. Poir. Dict. 5. 680. Persoon, 2. 35. Lo in Nouv. Duham. 5. 183. Seringe, DC. Prodr. 2. 533. Don, Mill. 2. 499. R Syn. Monog. 3. 60.

Cerasus pygmæa. Loisel. in Nouv. Duham. 5. 32. Seringe, DC. Prodr. 2. Don, Mill. 2. 513. Beck, Bot. 96. Eat. & Wr. 189. Loud. Arb. 2. 704.

? *P. reclinata.* Bosc.; Spach, Hist. Veg. 1. 398. Roem. Syn. Monog. 3. 58.

P. minutiflora. Engelm. in Gray, Pl. Lindh. 185. Torrey, Mex. Bound Gray, Proc. Am. Acad. 10. 71.

Cerasus minutiflora. Gray, Pl. Wright. 1. 68 & 2. 54. Bigelow, Pac. R. 4. 14. Torrey, same, 4. 83.

P. Pennsylvanica. Linn. f. Suppl. 252. Willd. Arb. 248; Spec. 2. 992. Dict. 5. 673. Persoon, 2. 35. Loisel. in Nouv. Duham. 5. 9. Ait. f. Hort. Kew. 2. Pursh, 331. Torrey, Fl. U. S. 468. Spreng. Syst. 2. 477. Beck, Am. Journ. 14. 112. Dietr. 3. 42. Curtis, Bot. N. Car. 57. Chapman, 120. Gray, Proc. A Philad. 1863, 61; Manual, 148. Porter, Fl. Col. 33. Emerson, Trees of M 2 ed. 2. 513.

? *P. montana.* Marshall, Arbust. 113.

P. lanceolata. Willd. Arb. 240, **t. 3, f. 3.**

Cerasus borealis. Michx. Fl. 1. 286. Loisel. in Nouv. Duham. 5. 32. Mich Arbr. Amer. 3. 159, **t. 8.** Seringe, DC. Prodr. 2. 538. Don, Mill. 2. 513. B Bot. 97. Loud. Arb. 2. 703, **f. 410.** Roem. Syn. Monog. 3. 78.

P. borealis. Poir. Dict. 5. 674. Pursh, 538. Bigel. Fl. Bost. 2 ed. 193. L Bot. Cab. **t. 1598.**

? *P. cerasifolia.* Desf. Arb. 2. 205.

? *Cerasus persicifolia.* Loisel. in Nouv. Duham. 5. 9. Seringe, DC. Prodr. 2. Don, Mill. 2. 512. Spach, Hist. Veg. 1. 411. Roem. Syn. Monog. 3. 81.

Cerasus Pennsylvanica. Seringe, DC. Prodr. 2. 539. Hook. Fl. Bor.-Am. 1. Don, Mill. 2. 514. Beck, Bot. 97. Torr. & Gray, Fl. 1. 409. Eat. & Wr. Torrey, Fl. N. Y. 1. 196. Loud. Arb. 2. 705. Emerson, Trees of Mass. 451. R Syn. Monog. 3. 57. Gray, Manual, 1 ed. 115. Nutt. Sylva, 2. 15. Richard. Exped. 425. Pl. Bourgeau, 256.

P. pumila. Linn. Mant. 75, excl. syn. DuRoi, Obs. Bot. 11. Ait. Hort. 2. 164. Willd. Spec. 2. 990. Poir. Dict. 5. 673. Persoon, 2. 34. Loisel. in N Duham. 5. 31. Pursh, 331. Torrey, Fl. U. S. 469. Guimp. Otto & Hayne, t. Spreng. Syst. 2. 477. Spach, Hist. Veg. 1. 400. Dietr. 3. 44. Emerson, Tre Mass. 2 ed. 2. 515. Engelm. Pl. Upp. Miss. 190. Gray, Manual, 148.

Cerasus pumila. Michx. Fl. 1. 286. Seringe, DC. Prodr. 2. 537. Hook. Fl. Am. 1. 167. Don, Mill. 2. 513. Beck, Bot. 96. Torr. & Gray, Fl. 1. 409. E Wr. 189. Torrey, Fl. N. Y. 1. 195; Nicol. Rep. 149. Loud. Arb. 2. 703. Eme Trees of Mass. 453. Roem. Syn. Monog. 3. 72. Gray, Manual, 1 ed. 115. ard. Arct. Exp. 424 & 425. Pl. Bourgeau, 256.

Cerasus glauca. Moench, Meth. 672.

P. Susquehannæ. Willd. Arb. 2 ed. 286; Enum. 519. Spach, Hist. Veg. 1.

P. depressa. Pursh, 332. Poir. Suppl. 4. 584. Nutt. Genera, 1. 302. Big Fl. Bost. 2 ed. 193. Torrey, Fl. U. S. 470. Spreng. Syst. 2. 477. **Lodd. Bot. t. 1607.**

P. cuneata. Raf. Ann. Nat. 11.

P. incana. Schweinitz, Long's Exped. 2, Appx. 113.

Cerasus Susquehannæ. Eat. & Wr. 189.

Cerasus depressa. Seringe, DC. Prodr. 2. 538. Hook. Fl. Bor.-Am. 1. 168. Don, Mill. 2. 514. Beck, Bot. 96. Eat. & Wr. 189. Loud. Arb. 2. 704. Roem. Syn. Monog. 3. 58.

P. rivularis. Scheele, Linnæa, 21. 594; Roem. Texas, 4. 30. Gray, Pl. Lindh. 186; Pl. Wright, 1. 67; Hall's Pl. Texas, 9. Walp. Ann. 2. 465.

P. Texana. Scheele, Linnæa, 21. 593.

P. serotina. Ehrh. Beitr. 3. 20. Willd. Arb. 239, **t. 5, f. 2**; Spec. 2. 986. Persoon, 2. 34. Ait. f. Hort. Kew. 3. 196. Guimp. Otto & Hayne, **t. 37**. Spreng. Syst. 2. 478. Nees, Pl. Neuwied, 9. Emerson, Trees of Mass. 2 ed. 2. 515, **t.** Engelm. Pl. Upp. Miss. 190. Curtis, Bot. N. Car. 56. Hook. f. Arct. Pl. 327. Lesqx. Fl. Ark. 358. Chapman, 120. Gray, Manual, 149; Hall's Pl. Texas, 9. Torrey, Bot. Wilkes, 284. Brew. & Wats. Bot. Calif. 167.

P. Virginiana. Mill. Dict., not Linn. DuRoi, Obs. Bot. 12; Harbk. 2. 191. Wangenh. Amer. **t. 14, f. 33.** Medicus, Bot. Beobacht. 1782, 345. Marsh. Arbust. 112. Walter, 146. Ait. Hort. Kew. 2. 163. Poir. Dict. 5. 664. Pursh, 329. Bigel. Fl. Bost. 118. Elliott, 1. 540. Torrey, Fl. U. S. 467.

? *Padus oblonga.* Moench, Meth. 671.

Cerasus Virginiana. Michx. Fl. 1. 285. Michx. f. Arbr. Am. 3. 151, **t. 6.** Hook. Fl. Bor.-Am. 1. 169, excl. syn. Don, Mill. 2. 515. Beck, Bot. 97. Darling. Fl. Cestr. 289. Loud. Arb. 2. 710, **f. 418.**

Cerasus serotina. Loisel. in Nouv. Duham. 5. 3. Seringe, DC. Prodr. 2. 540. Spach, Hist. Veg. 1. 416. Torr. & Gray, Fl. 1. 410. Eat. & Wr. 189. Torrey, Fl. N. Y. 1. 196; Pac. R. Rep. 7. 11. Loud. Arb. 2. 712, **t. 118** & **f. 419.** Emerson, Trees of Mass. 453. Gray, Manual, 1 ed. 115; Pl. Lindh. 186. Richard. Arct. Exp. 425. Bolander, Proc. Calif. Acad. 3. 79.

P. cartilaginea. Lehm. Ind. Sem. Hamb. 1833 (Litt.-Ber. zu Linnæa, 10. 76).

Padus serotina. Agardh, Theor. Syst. **t. 14, f. 8** (fr.).

Padus Virginiana & cartilaginea. Roem. Syn. Monog. 3. 86.

P. SPINOSA, Linn. Pursh, 333. Hook. Fl. Bor.-Am. 1. 167. Beck, Bot. 95. Torr. & Gray, Fl. 1. 408. Curtis, Bot. N. Car. 56. Gray, Manual, 148.

Var. INSITITIA. Gray, Manual, 148.

P. insititia, Linn. Emerson, Trees of Mass. 450. Gray, Manual, 1 ed. 115. Wood, Cl.-Book, 328.

P. subcordata. Benth. Pl. Hartw. 308. Torrey, Pac. R. Rep. 4. 82; Mex. Bound. 63. Newberry, Pac. R. Rep. 6. 73. Brew. & Wats. Bot. Calif. 1. 167.

P. umbellata. Elliott, 1. 541. Dietr. 3. 44. Chapman, 119. Wood, Cl.-Book, 328; Bot. & Fl. 102.

P. pumila. Walter, 146.

Cerasus umbellata. Torr. & Gray, Fl. 1. 409. Eat. & Wr. 190. Roem. Syn. Monog. 3. 78.

P. Virginiana. Linn. Spec. 473, excl. syn. Willd. Spec. 2. 985. Persoon, 2. 34. Guimp. Otto & Hayne, **t. 36.** Spreng. Syst. 2. 478. Dietr. 3. 42. Emerson, Trees of Mass. 2 ed. 2. 518, **t.** Torrey, Mex. Bound. 62. Hook. f. Arct. Pl. 200. Chapman, 120. Gray, Am. Journ. Sci. 2. 33. 411; Manual, 148. Challis, in Am. Naturalist, 2. 324. Watson, King's Rep. 5. 80. Porter, Fl. Col. 33. Brew. & Wats. Bot. Calif. 1. 167.

P. Canadensis. Marshall, Arbust. 113.

P. rubra. Ait. Hort. Kew. 2. 162. Willd. Arb. 238, t. 5, f. 1. Guimp. Otto & Hayne, t. 78.

P. serotina. Poir. Dict. 5. 665. Pursh, 330. Elliott, 1. 541. Torrey, Fl. N. Y. 1. 467.

? *P. hirsuta.* Elliott, 1. 541.

P. obovata. Bigel. Fl. Bost. 2 ed. 192.

Cerasus Virginiana. Loisel. in Nouv. Duham. 5. 3. James, Long's Exp. 3. 12. Seringe, DC. Prodr. 2. 539. Spach, Hist. Veg. 1. 414. Lindl. Fl Med. 232. Darling. Fl. Cestr. 289. Torr. & Gray, Fl. 1. 410. Eat. & Wr. 189. Torrey, Fl. N. Y. 1. 196; Nicol. Rep. 149; Frem. Rep. 89; Emory's Rep. 408; Pac. R. Rep. 4. 83. Emerson, Trees of Mass. 456. Gray, Manual, 1 ed. 115; Pac. R. Rep. 12. 42. Richard. Arct. Exp. 42. Engelm. Pl. Upp. Miss. 190. Cooper, Pac. R. Rep. 12. 30; Am. Naturalist, 3. 406. Pl. Bourgeau, 256. Boland. Proc. Calif. Acad. 4. 22; Cat. 10. Porter, Hayd. Rep. 1870, 475.

Cerasus serotina. Hook. Fl. Bor.-Am. 1. 169, excl. syn. Don, Mill. 2. 515. Beck, Bot. 97.

Cerasus obovata. Beck, Bot. 97. Eat. & Wr. 189.

Cerasus hirsuta. Spach, Hist. Veg. 1. 417. Eat. & Wr. 190.

P. densiflora & fimbriata. Spach, Hist. Veg. 1. 414.

Cerasus Duerinckii. Martens, Sel. Sem. h. Lovan. 1840 (Litt.-Ber. zu Linnæa, 1841, 90); Bull. Brux. 8. 68.

P. Duerinckii. Walp. Rep. 2. 10.

Padus serotina, rubra, hirsuta, obovata, densiflora & fimbriata. Roem. l. c.

Var. β. Torr. & Gray, Fl. 1. 410.

P. nana. DuRoi, Obs. Bot. 12.

Cerasus micrantha. Spach, Hist. Veg. 1. 414.

Padus micrantha. Roem. Syn. Monog. 3. 84.

Var. Gray, Pl. Wright. 2. 54.

Cerasus Virginiana. Gray, Pl. Fendl. 40.

P. ARMENIACA, Linn.

Armeniaca vulgaris, Lam. Gray, Pl. Fendl. 40.

P. acuminata; maritima.
angustifolia; Chicasa.
borealis; Pennsylvanica.
Canadensis; Americana, Virginiana.
Capuli; Capollin.
cartilaginea; serotina.
cerasifera; maritima.
cerasifolia; Pennsylvanica.
Chicasa; gracilis.
cuneata; pumila.
declinata; maritima.
densiflora; Virginiana.
depressa; pumila.
Duerinckii & fimbriata; Virginiana.
hiemalis; Americana.
hirsuta; Virginiana.
incana; pumila.
insititia; Chicasa, spinosa.
lanceolata; Pennsylvanica.
P. littoralis; maritima.
Lusitanica; Caroliniana.
minutiflora; fasciculata.
Mississippi; Americana.
mollis; emarginata.
montana; Pennsylvanica.
nana; Virginiana.
nigra; Americana.
obovata; Virginiana.
pubescens; maritima.
pumila; umbellata.
pygmæa & reclinata; maritima.
rubra & serotina; Virginiana.
serratifolia; Caroliniana.
sphærocarpa; maritima.
spinosa; Americana.
Susquehannæ; pumila.
Texana; glandulosa, rivularis.
Virginiana; demissa, serotina.

PURSHIA tridentata. DC. in Trans. Linn. Soc. 12. 157; Prodr. 2. 541. Hook. Fl. Bor.-Am. 1. 170, t. **58**; Lond. Journ. Bot. 6. 218. Lindl. Bot. Reg. 17, t. **1446**. Don, Mill. 2. 517. Nutt. in Journ. Acad. Philad. 7. 20. Spach, Hist. Veg. 1. 429. Torr. & Gray, Fl. 1. 428. Eat. & Wr. 381. Loud. Arb. 2. 721, f. **424, 425**. Torrey, Frem. Rep. 89 & 314; Bot. Wilkes, 287. Cooper, Pac. R. Rep. 12. 17. Gray, Ives's Rep. 11; Proc. Acad. Philad. 1863, 61. Baillon, Pl. Hist. 1. 380. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 82; Pl. Wheeler, 8. Porter, Fl. Col. 34. Brew. & Wats. Bot. Calif. 1. 173.

Tigarea tridentata. Pursh, 333, t. **15**. Nutt. Genera, 1. 302. Dietr. 3. 47.

ROSA acicularis. Lindl. Ros. Monog. 44, t. **8**. See syn. in C. A. Meyer, Zimmtrosen, 15; Crépin, Prim. Monog. Ros. 299; Regel, Ros. Monogr. 18. —

Var. Bourgeauiana. Crépin, l. c. 386 & 390. Referred to var. *Gmelini*, Meyer, by Regel, l. c.

R. blanda. Richard. Frankl. Journ. Appx. 11. Borrer in Hook. Fl. Bor.-Am. 1. 199, in part ?

R. Sayi. Schweinitz, in Keating, Long's Exped. 2, Appx. 113. Eaton, Manual, 5 ed. 367. Eat. & Wr. 398.

? *R. majalis.* Borrer, l. c. 201; fide Crépin, l. c. 458. Eat. & Wr. 398.

R. cinnamomea, var. *β.* Torr. & Gray, Fl. 1. 459.

R. Bourgeauiana. Crépin, l. c. 303.

R. blanda. Ait. Hort. Kew. 2. 202. Jacq. Fragm. Bot. 70, t. **105**. Willd. Spec. 2. 1065; Enum. 554. Poir. Dict. 6. 290. Persoon, 2. 47. Nouv. Duham. 7. 23. Smith, Rees Cyc. Raf. Ros. Am. in Ann. Sci. Phys. 5. 216. Tratt. Ros. 2. 151. Spreng. Syst. 2. 548. Hook. Fl. Bor.-Am. 1. 199, in part. Don, Mill. 2. 566. Torr. & Gray, Fl. 1. 459. Eat. & Wr. 397. Torrey, Fl. N. Y. 1. 219; Frem. Rep. 89 ? Dietr. 3. 195. Meyer, Zimmtros. 5 & 12. Richard. Arct. Exped. 427. Parry, Pl. Minn. 612. Seem. Bot. Herald, 29. Engelm. Pl. Upp. Miss. 191. Gray, Pac. R. Rep. 12. 43; Manual, 159. Hook. f. Arct. Pl. 290 & 327. Pl. Bourgeau, 256, in part. Traill, Canad. Fl. 63, t. **7**. Porter, Hayd. Rep. 1870, 475 ? Crépin, Prim. Monog. Ros. 174, 386 & 393. Regel, Ros. Monogr. 15.

R. fraxinifolia. Gmel. Fl. Bad. 2. 413. Lindl. Ros. 26; Bot. Reg. 6, t. **458**. Spreng. Syst. 2. 548. Seringe, DC. Prodr. 2. 606. Don, Mill. 2. 566. Spach, Hist. Veg. 2. 18. Loud. Arb. 2. 754, f. **480**. Coulter, Hayd. Rep. 1872, 765. Porter, Fl. Col. 38.

R. Pennsylvanica. Michx. Fl. 1. 296, in part.

? *R. nivea.* Raf. Ann. Sci. Phys. 5. 218. Crépin, l. c. 380. Dietr. 3. 198.

R. Woodsii. Lindl. Ros. 21; Bot. Reg. 12, t. **976**. Spreng. Neue Entdeck. 3. 244; Syst. 2. 547. Tratt. Ros. 2. 167. Seringe, DC. Prodr. 2. 604. Don, Mill. 2. 566. Spach, Hist. Veg. 2. 19. Torr. & Gray, Fl. 1. 460. Eat. & Wr. 398. Dietr. 3. 195. Loud. Arb. 2. 753. Meyer, Zimmtros. 17.

R. cinnamomea, var. *blanda.* Thory, Redout. Ros. 1. 134.

? *R. Rafinesquii.* Seringe, DC. Prodr. 2. 611. Don, Mill. 2. 571.

? *R. lævigata.* Borrer, Hook. Fl. Bor.-Am. 1. 200.

R. parviflora, var. *inermis.* H. H. Eaton, Transyl. Journ. Med. 1832.

R. blanda, var. *glabra.* Crépin, l. c. 394.

Var. pubescens. Crépin, l. c. 394.

R. blanda. Lindl. Ros. 25.

R. gemella. Willd. Enum. 544, mainly; fide Crépin, l. c. 189, 457. Pursh, 344. Poir. Suppl. 4. 711. Raf. Ann. Sci. Phys. 5. 216. Lindl. Ros. 134. Elliott, 1. 364. Tratt. Ros. 2. 161. Torrey, Fl. U. S. 485. Spreng. Syst. 2. 547. Beck, Bot. 110. Eat. & Wr. 397.

? *R. dasistema.* Raf. l. c. 219. Seringe, l. c. 623. Don, l. c. 586. Dietr. 3. 204. Crépin, l. c. 380.

R. Solandri. Tratt. Ros. 2. 150.

R. cinnamomea, var. *glabella.* Seringe, DC. Prodr. 2. 605.

Var. **setigera.** Crépin, l. c. 394.

R. Woodsii, var. Borrer, Hook. Fl. Bor.-Am. 1. 199.

R. stricta, var. β. Borrer, l. c. 200. Torr. & Gray, Fl. 1. 461.

? *R. blanda.* Torrey, Nicol. Rep. 149.

R. blanda, var. β. Gray, Pl. Fendl. 42 ? ; Pl. Wright. 1. 68, & 2. 55 ? Torrey, Sitgr. Rep. 159.

R. Arkansana. Porter, Fl. Colorado, 38. Rothr. Pl. Wheeler, 37. So referred by Crépin, l. c. 307.

R. stricta. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 324. — The *R. stricta* of Donn, Muhl., Lindl., & others (as well as the *R. lutescens* of Pursh, *R. Americana*, Waitz, and *R. pendulina* of authors), appears to belong wholly to the foreign *R. pimpinellifolia* or *R. alpina*, according to Crépin, l. c. 152, 457 & 459.

R. BRACTEATA, Wendl. Torr. & Gray, Fl. 1. 462. Wood, Cl.-Book, 334.

R. Californica. Cham. & Schlecht. in Linnæa, 2. 35. Don, Mill. 2. 569. Torr. & Gray, Fl. 1. 462. Walp. Rep. 2. 12. Dietr. 3. 197. Benth. Bot. Sulph. 14; Pl. Hartw. 309. Meyer, Zimmtros. 18. Presl, Epimel. Bot. 202. Gray, Proc. Am. Acad. 8. 382. Brew. & Wats. Bot. Calif. 1. 187. Crépin, Prim. Monog. Ros. 410, with vars. To *R. Carolina* mainly, by Regel, Ros. Monogr. 77.

R. blanda. Hook. & Arn. Bot. Beechey, 339. Durand, Pl. Pratten. 87. Torrey, Pac. R. Rep. 4. 85 & 7. 11; Mex. Bound. 64. Boland. Proc. Calif. Acad. 3. 80; Cat. 11.

R. fraxinifolia. Dur. & Hilg. in Pac. R. Rep. 5. 7.

Var. **pubescens.** Crépin, l. c. 413.

R. cinnamomea, var. Benth. Pl. Hartw. 309.

R. cinnamomea. Torrey, Pac. R. Rep. 7. 11.

R. Californica. Regel, Ros. Monogr. 79.

Var. **glandulosa.** Crépin, l. c.

R. Californica, var. *Petersiana.* Meyer, Zimmtros. 19.

Var. **ultramontana.** Watson, Bot. Calif. 187.

R. foliolosa, var. *leiocarpa.* Torrey, Frem. Rep. 89.

? *R. Maximiliani.* Nees, Pl. Neuwied, 8.

R. Woodsii. Gray, Pl. Fendl. 42.

R. blanda. Gray, Pl. Fendl. 42; Am. Journ. Sci. 2. 33. 411. Durand, Fl. Utah, 163. Anderson, Cat. Pl. Nev. 120. Porter, Fl. Col. 38. Watson, King's Rep. 5. 91. Coulter, Hayd. Rep. 1872, 765. Rothr. Pl. Wheeler, 37.

R. foliolosa. Torrey, Pac. R. Rep. 4. 85.

R. gymnocarpa. Porter, Hayd. Rep. 1870, 475.

? *R. Californica.* Gray, Proc. Am. Acad. 8. 382. Watson, Pl. Wheeler, 8.

R. Fendleri. Crépin, l. c. 452.

R. cinnamomea, var. *Dahurica.* Regel, l. c. 41, in part.

R. CANINA, Linn. Tuckerman, Josselyn's Rarities, 120. Gray, Manual, 680.

R. Carolina. Linn. Spec. 2 ed. 703. DuRoi, Obs. Bot. 21. Wangenh. Amer. 112, t. 31, f. 71. Ait. Hort. Kew. 2. 203. Willd. Spec. 2. 1069. Persoon, 2. 48. Pursh, 345. Bigel. Fl. Bost. 121. Loisel. in Nouv. Duham. 7. 15. Raf. Ann. Sci. Phys. 5. 214. Elliott, 1. 565. Lindl. Ros. 23, t. 4. Torrey, Fl. U. S. 486; Fl. N. Y. 1. 218. Seringe, DC. Prodr. 2. 605. Redout. Ros. 1. 81, t. 28. Audubon,

Birds, t. 93. Hook. Fl. Bor.-Am. 1. 199. Don, Mill. 2. 566. Beck, Bot. 109. Spach, Hist. Veg. 2. 18. Darling. Fl. Cestr. 311. Torr. & Gray, Fl. 1. 458. Eat. & Wr. 397. Nees, Pl. Neuwied, 9. Dietr. 3. 195. Loud. Arb. 2. 753. Tuckerman, l. c. 70 & 90. Curtis, Bot. N. Car. 80. Chapman, 126. Hook. f. Arct. Pl. 290 & 327. Gray, Manual, 158. Crépin, Prim. Monog. Ros. 177 & 418. Regel, Ros. Monogr. 77.

R. Virginiana. DuRoi, Obs. Bot. 21; Harbk. 2. 353. Roessig, Ros. t. 13. Tratt. Ros. 2. 154.

R. corymbosa. Ehrh. Beitr. 4. 21. Muhl. Cat. 50. Barton, Fl. Philad. 1. 231.

R. Carolinensis & palustris. Marsh. Arbust. 135.

R. Pennsylvanica. Michx. Fl. 1. 296, in part. Poir. Dict. 6. 295.

R. Florida. Donn, Cat. Cant. 8 ed. 169.

R. flexuosa. Raf. Préc. Découv. 35; Journ. Bot. 4. 268. Poir. Suppl. 5. 778. Seringe, DC. Prodr. 2. 623. Don, Mill. 2. 585. Dietr. 3. 204. Crépin, l. c. 379.

R. enneaphylla. Raf. ll. cc. Poir. Suppl. 5. 778. Tratt. Ros. 2. 228.

? *R. glandulosa & elegans.* Raf. Ann. Sci. Phys. 5. 214. Seringe, l. c. Don. l. c. Dietr. l. c. Crépin, l. c. 377.

R. majalis, var. γ. Loisel. in Nouv. Duham. 7. 16.

? *R. evratina.* Bosc; Poir. Suppl. 4. 714. Lindl. Ros. 136. Raf. Ann. Sci. Phys. 5. 215. Tratt. Ros. 1. 35 & 2. 185.

R. Hudsoniana. Thory in Redout. Ros. 1. 95, t. 35. Tratt. Ros. 2. 147.

R. Sprengeliana & Raffinesquejana. Tratt. Ros. 2. 163 & 234.

R. cinnamomea, var. *gemella.* Seringe, DC. Prodr. 2. 605; fide Crépin, l. c. 189.

R. Durandii. Crépin, Bull. Bot. Soc. Fr. 22 (Compt. Rend.) 19; Prim. Monog. Ros. 407.

R. Kamtschatica. Gray, Proc. Am. Acad. 8. 382.

R. foliolosa. Nutt.; Torr. & Gray, Fl. 1. 460. Walp. Rep. 2. 12. Dietr. 3. 195. Gray, Pl. Lindh. 180; Hall's Pl. Texas, 9. Torrey, Sitgr. Rep. 175. Young, Fl. Texas, 256. Crépin, l. c. 431. To *R. lucida* by Regel, Ros. Monogr. 17.

R. gymnocarpa. Nutt.; Torr. & Gray, Fl. 1. 461; Pac. R. Rep. 2. 121. Walp. Rep. 2. 12. Dietr. 3. 195. Presl, Epimel. Bot. 203. Durand, Pl. Pratten. 87. Torrey, Pac. R. Rep. 4. 85; Mex. Bound. 64, t. 21; Bot. Wilkes, 203. Cooper, Pac. R. Rep. 12. 30 & 60. Bolander, Proc. Calif. Acad. 3. 80; Cat. 11. Gray, Proc. Am. Acad. 8. 382. Crépin, Prim. Monog. Ros. 433. Brew. & Wats. Bot. Calif. 1. 187. To *R. pimpinellifolia* by Regel, l. c. 23.

Var. pubescens. Watson, Bot. Calif. 1. 187.

R. LÆVIGATA. Michx. Fl. 1. 295. Poir. Dict. 6. 295. Persoon, 2. 49. Raf. Ann. Sci. Phys 5. 216. Elliott, 1. 566. Tratt. Ros. 2. 184. Spreng. Syst. 2. 556. Seringe, DC. Prodr. 2. 600. Don, Mill. 2. 584. Torr. & Gray, Fl. 1. 461. Eat. & Wr. 399. Chapman, 126. Wood, Cl.-Book, 334; Bot. & Fl. 109. Crépin, l. c. 359 & 438, with syn.; Bull. Soc. Bot. Belg. 16. 28.

R. Cherokeensis. Donn, Cat. Cant. 8 ed. 170.

R. Sinica. Hook. Bot. Mag. t. 2847. Lindl. Bot. Reg. t. 1922. Regel, Ros. Monogr. 43, & syn.

R. lucida. Ehrh. Beitr. 4. 22. Moench, Meth. 687. Willd. Arb. 310; Spec. 2. 1068. Roth, Cat. Bot. 2. 94. Poir. Dict. 6. 294. Persoon, 2. 48. Jacq. Fragm. 71, t. 107, f. 3. Nouv. Duham. 7. 17, t. 7, f. 2. Redout. Ros. 1. 45, t. 11. Raf. Ann. Sci. Phys. 5. 216. Lindl. Ros. 17. Tratt. Ros. 2. 152. Guimp. Otto & Hayne, t. 93. Spreng. Syst. 2. 547. Seringe, DC. Prodr. 2. 602. Hook. Fl. Bor.-Am. 1. 199. Don, Mill. 2. 565. Spach, Hist. Veg. 2. 20. Crépin, Prim. Monog. Ros. 179 & 421; Bull. Soc. Bot. Belg. 16. 26. Regel, Ros. Monogr. 16.

? *R. Rapa.* Bosc; Poir. Suppl. 4. 710. Redout. Ros. 1. 7, **t. 2.** Lindl. Ros. 15. Spreng. Syst. 2. 547. Seringe, DC. Prodr. 2. 602. Don, Mill. 2. 565. Spach, Hist. Veg. 2. 21.

R. MICRANTHA, Smith. Bigel. Fl. Bost. 2 ed. 197. Eat. & Wr. 398. Wood, Class-Book, 335. Gray, Manual, 159.

R. MULTIFLORA, Thunb. Wood, Cl.-Book, 334.

R. nitida. Willd. Enum. 544. Pursh, 344. Poir. Suppl. 4. 711. Raf. Ann. Sci. Phys. 5. 212. Lindl. Ros. 13, **t. 2.** Tratt. Ros. 2. 177. Torrey, Fl. U. S. 485. Spreng. Syst. 2. 547. Seringe, DC. Prodr. 2. 603. Hook. Fl. Bor.-Am. 1. 198. Don, Mill. 2. 565. Beck, Bot. 109. Spach, Hist. Veg. 2. 21. Torr. & Gray, Fl. 1. 459. Eat. & Wr. 397. Dietr. 3. 195. Loud. Arb. 2. 752, **f. 477.** Gray, Manual, 1 ed. 127. Crépin, Prim. Monog. Ros. 188 & 424. Regel, Ros. Monogr. 18. To *R. lucida* (i. e. *R. parviflora*) by Gray, Manual, 158.

R. rubrispina. Bosc, Dict. Agr. 246. Poir. Suppl. 4. 715. Tratt. Ros. 2. 179. Seringe, DC. Prodr. 2. 623. Don, Mill. 2. 586.

R. blanda. Pursh, 334 & 749.

? *R. lucida.* Beck, Bot. 109.

R. Redoutea. Thory, Redout. Ros. 1. 103, **t. 36.** Tratt. Ros. 2. 176.

R. Nutkana. Presl, Epimel. Bot. 203. Walp. Ann. 3. 854. Crépin, Prim. Monog. Ros. 400; Bull. Soc. Bot. Belg. 16. 26.

R. cinnamomea. Hook. Fl. Bor.-Am. 1. 200. Torr. & Gray, Fl. 1. 459. Seem. Bot. Herald, 52. Richard. Arct. Exped. 427. Cooper, Pac. R. Rep. 12. 30. Hook. f. Arct. Pl. 290 & 327. Rothr. Fl. Alask. 446.

R. fraxinifolia. Hook. Fl. Bor.-Am. 1. 199. Torr. & Gray, Fl. 1. 460. Eat. & Wr. 398. Newberry, Pac. R. Rep. 6. 73. Cooper, same, 12. 60. Watson, King's Rep. 5. 92. Porter, Fl. Col. 38.

R. macrocarpa. Nutt.; Raf. Med. Bot. 2. 258.

R. blanda (?). Gray, Proc. Am. Acad. 8. 382. Torrey, Bot. Wilkes, 293. Watson, Pl. Wheeler, 8. Brew. & Wats. Bot. Calif. 1. 187.

? *R. Aleutensis.* Crépin, Bull. Soc. Bot. Belg. 13. 40 & 16. 25; Prim. Monog. Ros. 409. To *R. alpina*, Linn., by Regel, l. c. 13.

R. Woodsii. Regel, l. c. 15, including *R. amblyotis*, Meyer.

R. parviflora. Ehrh. Beitr. 4. 21. DuRoi, Harbk. 2. 354. Willd. Arb. 309; Spec. 2. 1068. Poir. Dict. 6. 296. Persoon, 2. 48. Pursh, 344. Raf. Ann. Sci. Phys. 5. 212. Elliott, 1. 563. Lindl. Ros. 20. Redout. Ros. 2. 73, **t. 94.** Tratt. Ros. 2. 157. Spreng. Syst. 2. 547. Seringe, DC. Prodr. 2. 604. Don, Mill. 2. 565. Beck, Bot. 109. Hook. Comp. Bot. Mag. 1. 25. Spach, Hist. Veg. 2. 19. Darling. Fl. Cestr. 310. Eat. & Wr. 397. Loud. Arb. 2. 753, **f. 479.** Crépin, Prim. Monog. Ros. 178 & 427. — The synonymy of this species is much confused with that of *R. lucida* & *nitida.*

R. Carolina. Linn. Spec. 492 ?; fide Crépin, l. c. 420. Walter, 149. DuRoi, Harbk. 2. 355.

R. humilis. Marsh. Arbust. 136.

R. Pennsylvanica. Wangenh. Amer. 113.

R. Caroliniana. Michx. Fl. 1. 295. Poir. Dict. 6. 294.

R. Lyonii. Pursh, 345. Poir. Suppl. 4. 714. Raf. Ann. Sci. Phys. 5. 217. Lindl. Ros. 134. Tratt. Ros. 2. 159. Spreng. Syst. 2. 547. Seringe, DC. Prodr. 2. 606. Don, Mill. 2. 585. Eat. & Wr. 399. Dietr. 3. 204.

R. lucida. Pursh, 344. Elliott, 1. 563. Torrey, Fl. U. S. 485; Fl. N. Y. 1. 218; Nicol. Rep. 149 ?; Emory's Rep. 408 ? Torr. & Gray, Fl. 1. 458. Eat. & Wr. 397. Dietr. 3. 195. Loud. Arb. 2. 752, **f. 476.** Parry, Pl. Minn. 612 ? Engelm. Pl.

Upp. Miss. 191 ? Curtis, Bot. N. Car. 89. Chapman, 126. Gray, Manual, 158. Regel, Ros. Monogr. 16.

? *R. globosa, obovata serrulata & pusilla.* Raf. Ann. Sci. Phys. 5. 215–218. Seringe, DC. Prodr. 2. 610 & 611. Don, Mill. 2. 570 & 571. Dietr. 3. 198. Crépin, l. c. 378 & 452.

? *R. acuminata, pratensis & riparia.* Raf. l. c. 216 & 217. Seringe, l. c. 623. Don, l. c. 585 & 586. Dietr. 3. 204. Crépin, l. c. 378.

R. laxa. Lindl. Ros. 18, t. 3. Spach, Hist. Veg. 2. 20.

R. Lindleyi. Spreng. Syst. 2. 647. Seringe, DC. Prodr. 2. 604. Don, Mill. 2. 565. Dietr. 3. 195. Loud. Arb. 2. 753.

R. pisocarpa. Gray, Proc. Am. Acad. 8. 382. Brew. & Wats. Bot. Calif. 1. 187. Referred with doubt to *R. Nutkana*, as var. *microcarpa*, by Crépin, l. c. 405.

R. RUBIGINOSA, Linn. Bigel. Fl. Bost. 2 ed. 197. Torrey, Fl. U. S. 486; Fl. N. Y. 1. 220. Audubon, Birds, t. 137. Darling. Fl. Cestr. 311. Torr. & Gray, Fl. 1. 461. Tuckerman, Josselyn's Rarities, 119. Chapman, 126. Gray, Manual, 159.

R. suaveolens. Pursh, 346. Poir. Suppl. 4. 714. Smith in Rees Cyc. Raf. Ann. Sci. Phys. 5. 218. Elliott, 1. 506. Tratt. Ros. 2. 81. Seringe, DC. Prodr. 2. 617. Don, Mill. 2. 578. Beck, Bot. 110. Eat. & Wr. 398. Loud. Arb. 2. 766.

R. setigera. Michx. Fl. 1. 295. Poir. Dict. 6. 295. Persoon, 2. 48. Lindl. Ros. 128. Raf. Ann. Sci. Phys. 5. 213. Elliott, 1. 565. Tratt. Ros. 2. 153. Spreng. Syst. 2. 556. Seringe, DC. Prodr. 2. 599. Don, Mill. 2. 584. Torr. & Gray, Fl. 1. 457; Pac. R. Rep. 2. 164. Eat. & Wr. 399. Chapman, 125. Gray, Manual, 158. Crépin, Prim. Monog. Ros. 388. To *R. moschata*, Mill., by Regel, l. c. 81.

R. fenestrata. Donn, Cat. Cant. 8 ed. 170. Tratt. Ros. 2. 187.

R. rubifolia, var. *fenestralis.* Lindl. Ros. 123, t. 15. Seringe, DC. Prodr. 2. 599. Spreng. Syst. 2. 556.

? *R. cursor & trifoliata.* Raf. in Ann. Sci. Phys. 5. 213. Seringe, DC. Prodr. 2. 610. Don, Mill. 2. 570. Dietr. 3. 198. Crépin, l. c. 377.

Var. tomentosa. Torr. & Gray, Fl. 1. 458.

R. rubifolia. R. Brown in Ait. f. Hort. Kew. 3. 260. Pursh, 345. Poir. Suppl. 4. 714. Raf. Ann. Sci. Phys. 5. 216. Lindl. Ros. 123. Spreng. Neue Entdeck. 3. 248; Syst. 2. 556. Redout. Ros. 3. 71, t. 152. Tratt. Ros. 2. 186. Seringe, DC. Prodr. 2. 598. Torrey, Ann. Lyc. N. Y. 2. 198. Beck, Am. Journ. Sci. 1. 14. 113; Bot. 109. Don, Mill. 2. 584. Spach, Hist. Veg. 2. 44. Hook. Comp. Bot. Mag. 1. 25. Eat. & Wr. 397. Loud. Arb. 2. 776, f. 516.

R. mutabilis. Bradbury; James, Long's Exped. 1. 69.

? *R. Kentuckensis.* Raf. l. c., and citations as above.

R. acuminata; parviflora.
Aleutensis; Nutkana.
alpina; blanda, Nutkana.
amblyotis; Nutkana.
Americana & Arkansana; blanda.
blanda; acicularis, Californica, nitida, Nutkana.
Bourgeauiana; acicularis.
Carolina & Caroliniana; parviflora, Californica.
Carolinensis; Carolina.
R. Cherokeensis; lævigata.
cinnamomea; acicularis, blanda, Californica, Carolina, Nutkana.
corymbosa; Carolina.
cursor; setigera.
dasistema; blanda.
elegans, enneaphylla & evratina; Carolina.
Fendleri; Californica.
fenestrata; setigera.
flexuosa & Florida; Carolina.

R. foliolosa; Californica.
fraxinifolia; blanda, Californica, Nutkana.
gemella; blanda.
glandulosa; Carolina.
globosa; parviflora.
gymnocarpa; Californica.
Hudsoniana; Carolina.
humilis; parviflora.
Kamtschatica; Durandii.
Kentuckensis; setigera.
lævigata; blanda.
laxa, Lindleyi & Lyonii; parviflora.
lucida; foliolosa, nitida, parviflora.
lutescens; blanda.
macrocarpa; Nutkana.
majalis; acicularis, Carolina.
Maximiliani; Californica.
moschata & mutabilis; setigera.
nivea; blanda.
Nutkana; pisocarpa.
obovata; parviflora.
palustris; Carolina.
R. parviflora & pendulina; blan
Pennsylvanica; blanda, Caro viflora.
pimpinellifolia; blanda, gym
pratensis & pusilla; parviflor
Raffinesquejana; Carolina.
Rafinesquii; blanda.
Rapa; lucida.
Redoutea; nitida.
riparia; parviflora.
rubifolia; setigera.
rubrispina; nitida.
Sayi; acicularis.
serrulata; parviflora.
Sinica; lævigata.
Solandri & stricta; blanda.
Sprengeliana; Carolina.
suaveolens; rubiginosa.
trifoliata; setigera.
Virginiana; Carolina.
Woodsii; blanda, Californ kana.

RUBUS arcticus. Linn. Spec. 494. See syn. in Ledeb. Fl. Ross. 2. 70 & Mey. Fl. Ochot. 34; Pritzel, Index Icon. Bot. 952. — Ait. Hort. Ke Willd. Spec. 2. 1089. Pursh, 349. Schrank, Pfl. Lab. 26. Spreng. S Seringe, DC. Prodr. 2. 565. Spreng. Syst. 2. 532. Cham. & Schlecht 2. 18. Hook. Fl. Bor.-Am. 1. 182. E. Meyer, Pl. Lab. 79. Don, M Torr. & Gray, Fl. 1. 451. Eat. & Wr. 400. Seem. Bot. Herald, 29 & 52. Arct. Exped. 427. Hook. f. Arct. Pl. 289 & 325. Pl. Bourgeau, 256. Alask. 445. Maximowicz, Bull. Acad. Petersb. 17. 148 (Mélang. Bi Focke, Batograph. Abhandl. in Abhandl. Naturw. Ver. Brem. 4. 147 & 1

Var. **grandiflorus.** Ledeb. Fl. Ross. 2. 70. Torr. & Gray, Fl. 1. 452.
R. acaulis. Michx. Fl. 1. 298. Poir. Dict. 6. 237. Persoon, 2. 52. DC. Prodr. 2. 565. Hook. Fl. Bor.-Am. 1. 182. Don, Mill. 2. 539. Beck Schlecht. in Linnæa, 10. 98. Hook. & Arn. Bot. Beechey, 123. Eat. & W
R. pistillatus. Smith, Exot. Bot. 2. 53, t. 86. Ait. f. Hort. Kew. 3. 27 349. Poir. Suppl. 4. 695. Richard. Frankl. Journ. 11. Spreng. Syst. 2.
R. propinquus. Richard. Frankl. Journ. 2 ed. 19.
Manteia acaulis. Raf. Sylv. Tellur. Mant. 161.

R. Canadensis. Linn. Spec. 494. Marsh. Arbust. 138. Willd. Spe Poir. Dict. 6. 243. Persoon, 2. 51. Pursh, 347. Spreng. Syst. 2. 532. DC. Prodr. 2. 564. Hook. Fl. Bor.-Am. 1. 180. Don, Mill. 2. 538. Beck Torr. & Gray, Fl. 1. 455. Eat. & Wr. 400. Dietr. 3. 173. Torrey, Fl. N. Loud. Arb. 2. 745. Richard. Arct. Exped. 426. Lesqx. Fl. Ark. 359. G ual, 157. Focke, l. c. 153 & 160.
? *R. arcticus.* Walter, 149.
R. flagellaris. Willd. Enum. 549. Poir. Suppl. 4. 694. Pursh, 347. Pfl. Lab. 26. Elliott, 1. 569. Seringe, DC. Prodr. 2. 559. Don, Mill. 2. 5 distinct by Focke, l. c. 152 & 160.

R. trivialis. Pursh, 347. Bigel. Fl. Bost. 122. Torrey, Fl. U. S. 489. Guimp. Otto & Hayne, t. 71. Hook. Fl. Bor.-Am. 1. 180. Darling. Fl. Cestr. 308.

R. procumbens. Muhl. Cat. 52. Barton, Fl. Philad. 1. 233.

R. trivialis, var. γ. Hook. Comp. Bot. Mag. 1. 25.

R. Chamæmorus. Linn. Fl. Lapp. 163, t. 5, f. 1; Spec. 494. See syn. in Ledeb. Fl. Ross. 2. 71; Trautv. & Mey. Fl. Ochot. 34; Maximowicz, l. c. 147 (374); Pritzel, Index Icon. 957. — Willd. Spec. 2. 1090. Michx. Fl. 1. 298. Poir. Dict. 6. 236. Pursh, 349. Schrank, Pfl. Lab. 26. Richard. Frankl. Journ. 11; Arct. Exped. 427. Torrey, Fl. U. S. 490. Spreng. Syst. 2. 532. Seringe, DC. Prodr. 2. 565. Cham. & Schlecht. in Linnæa, 2. 7. Hook. Fl. Bor.-Am. 1. 183. Meyer, Pl. Lab. 80. Bongard, Veg. Sitch. 132. Don, Mill. 2. 539. Beck, Bot. 104. Spach, Hist. Veg. 1. 458. Audubon, Birds, t. 193. Hook. & Arn. Bot. Beechey, 123. Torr. & Gray, Fl. 1. 451. Eat. & Wr. 401. Bigel. Fl. Bost. 3 ed. 214. Dietr. 3. 174. Seem. Bot. Herald, 29 & 52. Lange, Pl. Groenl. 134. Hook. f. Arct. Pl. 290. Rothr. Fl. Alask. 445. Gray, Manual, 157. Matthew, Fl. Acad. 8. Focke, Batogr. Abhandl. 146.

R. cuneifolius. Pursh, 347. Poir. Suppl. 4. 696. Nutt. Genera, 1. 308. Elliott, 1. 568. Torrey, Fl. U. S. 488; Fl. N. Y. 1. 217. Spreng. Syst. 2. 529. Seringe, DC. Prodr. 2. 563. Don, Mill. 2. 537. Beck, Bot. 103. Darling. Fl. Cestr. 306. Torr. & Gray, Fl. 1. 456. Eat. & Wr. 400. Dietr. 3. 172. Loud. Arb. 2. 745. Curtis, Bot. N. Car. 88. Chapman, 125. Gray, Manual, 158. Focke, l. c. 152.

R. parvifolius. Walter, 149. Muhl. Cat. 50. Tratt. Ros. 3. 49.

R. Dalibarda. Linn. Spec. 2. ed. 708. Smith, Pl. Icon. t. 20. Ait. Hort. Kew. 2. 211. Lam. Ill. 2. 549, t. 441. Willd. Spec. 2. 1090. Benth. & Hook. Gen. Pl. 1. 617. Focke, Batogr. Abhandl. 145.

Dalibarda repens. Linn. Spec. 491. Poir. Dict. 6. 250. Persoon, 2. 53. Pursh, 350. Bigel. Fl. Bost. 2 ed. 202. Torrey, Fl. U. S. 491; Fl. N. Y. 1. 213. Spreng. Syst. 2. 526. DC. Prodr. 2. 568. Hook. Fl. Bor.-Am. 1. 184. Don, Mill. 2. 541. Beck, Bot. 105. Torr. & Gray, Fl. 1. 449. Eat. & Wr. 219. Dietr. 3. 164. Gray, Manual, 156.

Dalibarda violæoides. Michx. Fl. 1. 299, t. 27. Ait. f. Hort. Kew. 3. 271. Nestler, Monogr. Potent. 9, t. 1.

Dalibarda cordata. Stephan, Act. Soc. Mosc. 1. 92.

R. deliciosus. James, Long's Exped. 2. 193. Torrey, Ann. Lyc. N. Y. 2. 196. Hook. Fl. Bor.-Am. 1. 183. Don, Mill. 2. 539. Torr. & Gray, Fl. 1. 450; Pac. R. Rep. 2. 126. Eat. & Wr. 401. Walp. Rep. 2. 22. Dietr. 3. 175. Loud. Arb. 2. 746, f. 466. Gray, Am. Journ. Sci. 2. 33. 411 & 3. 6. 389; Proc. Acad. Philad. 1863, 61. Hook. f. Bot. Mag. t. 6062. Porter, Fl. Col. 34. Rothr. Pl. Wheeler, 37. Focke, l. c. 146 & 156.

R. spectabilis. James, Cat. 182.

R. Neo-Mexicanus. Gray, Pl. Wright. 2. 55. Walp. Ann. 4. 659. Torrey, Mex. Bound. 64. To *R. trilobus*, Moç., by Seemann, Bot. Herald, 282.

R. Razlii. Regel, Act. Hort. Petrop. 3. 285.

R. hispidus. Linn. Spec. 493. Ait. Hort. Kew. 2. 209. Willd. Spec. 2. 1083. Poir. Dict. 6. 246. Persoon, 2. 51. Pursh, 347. Torrey, Fl. U. S. 489; Fl. N. Y. 1. 217. Spreng. Syst. 2. 530. Torr. & Gray, Fl. 1. 455. Eat. & Wr. 400. Dietr. 3. 173. Loud. Arb. 2. 745. Richard. Arct. Exped. 426. Curtis, Bot. N. Car. 88. Chapman, 125. Gray, Manual, 158. Focke, l. c. 152.

R. obovalis. Michx. Fl. 1. 298. Poir. Dict. 6. 239. Pursh, 349. Torrey, Fl. U. S. 490. Spreng. Syst. 2. 532. Seringe, DC. Prodr. 2. 565. Beck, Bot. 104. Eat. & Wr. 400.

R. obovatus. Elliott, 1. 570. Tratt. Ros. 3. 95. Hook. Fl. Bor.-Am. 1. 180, **t. 60.** Don, Mill. 2. 539. Darling. Fl. Cestr. 308.

R. sempervirens. Bigel. Fl. Bost. 2 ed. 201. Eat. & Wr. 400.

Var. **setosus.** Torr. & Gray, Fl. 1. 456.

R. setosus. Bigel. Fl. Bost. 2 ed. 198. Seringe, DC. Prodr. 2. 563. Hook. Fl. Bor.-Am. 1. 179. Don, Mill. 2. 536. Beck, Bot. 103. Eat. & Wr. 400. Loud. Arb. 2. 744.

R. leucodermis. Dougl.; Torr. & Gray, Fl. 1. 454. Walp. Rep. 2. 23. Dietr. 3. 167. Presl, Epimel. Bot. 197. Torrey, Pac. R. Rep. 4. 85. Cooper, same, 12. 30 & 60. Regel, Gartenfl. 19. 353, **t. 670.** Watson, King's Rep. 5. 82. Gray, Proc. Am. Acad. 8. 381. Brew. & Wats. Bot. Calif. 1. 172.

R. occidentalis, var. *β.* Hook. Fl. Bor.-Am. 1. 178. Focke, l. c. 147.

R. glaucifolius. Kellogg, Proc. Calif. Acad. 1. 67.

R. occidentalis. Boland. Cat. 11.

R. neglectus. Peck, Rep. Reg. N. Y. State Univ. 22. 53. Meehan, Torr. Bot. Bull. 1. 30. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 323. Hybrid of *R. strigosus* & *occidentalis,* fide Austin, Torr. Bot. Bull. 1. 31, & Focke, l. c. 156.

R. nivalis. Dougl.; Hook. Fl. Bor.-Am. 1. 181. Don, Mill. 2. 539. Torr. & Gray, Fl. 1. 451. Eat. & Wr. 401. Walp. Rep. 2. 23. Dietr. 3. 174. Focke, Batogr. Abhandl. 148 & 156. — A doubtful species, perhaps a form of *R. strigosus.*

R. Nutkanus. Moçino, Icon. Fl. Mex. ined. **t. 291.** Seringe, DC. Prodr. 2. 567. Lindl. Bot. Reg. 16, **t. 1368.** Bongard, Veg. Sitch. 131. Sweet, Brit. Fl. Gar. 2 ser. **t. 83.** Hook. Fl. Bor.-Am. 1. 183; Bot. Mag. **t. 3453;** Lond. Journ. Bot. 6. 220. Don, Mill. 2. 540. Spach, Hist. Veg. 1. 460. Torr. & Gray, Fl. 1. 452. Eat. & Wr. 400. Dietr. 3. 175. Ledeb. Fl. Ross. 2. 72. Loud. Arb. 2. 745, **f. 460.** Benth. Pl. Hartw. 308. Presl, Epimel. Bot. 197. Richard. Arct. Exped. 452. Torrey, Pac. R. Rep. 4. 85; Mex. Bound. 64; Bot. Wilkes, 290. Newberry, Pac. R. Rep. 6. 71. Cooper, same, 12. 60. Gray, Am. Journ. Sci. 2. 33. 411; Manual, 156; Proc. Am. Acad. 8. 381. Boland. Proc. Calif. Acad. 3. 80; Cat. 11. Trautv. Bourgeau, 256. Rothr. Fl. Alask. 446. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 81; Pl. Wheeler, 8. Porter, Hayd. Rep. 1871, 482; Fl. Col. 4. Coulter, Hayd. Rep. 1872, 765. Focke, l. c. 146 & 156. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 323. Brew. & Wats. Bot. Calif. 1. 171.

Var. **Nuttallii.** Torr. & Gray, l. c. Walp. Rep. 2. 22. Gray, Pl. Fendl. 42.

R. parviflorus. Nutt. Genera, 1. 308. Spreng. Syst. 2. 532. Seringe, DC. Prodr. 2. 565. Don, Mill. 2. 539. Beck, Bot. 104. Eat. & Wr. 401.

Var. **velutinus.** Brewer, Bot. Calif. 1. 172.

R. velutinus. Hook. & Arn. Bot. Beechey, 140. Torr. & Gray, Fl. 1. 450. Dietr. 3. 175. Boland. in Proc. Calif. Acad. 3. 80. Focke, l. c. 147.

R. occidentalis. Linn. Spec. 493. Marshall, Arbust. 138. Walter, 149. Ait. Hort. Kew. 2. 209. Willd. Spec. 2. 1082. Michx. Fl. 1. 297. Poir. Dict. 6. 244. Persoon, 2. 51. Pursh, 346. Bigel. Fl. Bost. 121. Elliott, 1. 568. Richard. Frankl. Journ. 2 ed. 19; Arct. Exped. 426. Torrey, Fl. U. S. 489; Fl. N. Y. 1. 215; Emory's Rep. 408. Spreng. Syst. 2. 530. Seringe, DC. Prodr. 2. 558. Hook. Fl. Bor.-Am. 1. 178, excl. var. Don, Mill. 2. 531. Beck, Bot. 102. Darling. Fl. Cestr. 306. Torr. & Gray, Fl. 1. 453. Eat. & Wr. 400. Dietr. 3. 166. Loud. Arb. 2. 736, **f. 451.** Engelm. Pl. Upp. Miss. 191. Curtis, Bot. N. Car. 88. Chapman 125. Gray, Manual, 157. Focke, Batogr. Abhandl. 147 (with *R. leucodermis* & *R. eriocarpus,* Liebm., as subspecies).

R. Idæus, var. *Americanus.* Torrey, Ann. Lyc. N. Y. 2. 196. Eat. & Wr. 400.

R. odoratus. Linn. Spec. 494. Marsh. Arbust. 138. Ait. Hort. Kew. 2. 210. Moench, Meth. 670. Sims, Bot. Mag. t. **323**. Willd. Spec. 2. 1085. Michx. Fl. 1. 297. Poir. Dict. 6. 247. Persoon, 2. 52. St. Hil. Pl. France, 3, t. **322**. Pursh, 348. Bigel. Fl. Bost. 123. Elliott, 1. 570. Barton, Fl. N. Am. 2. 21, t. **42**. Torrey, Fl. U. S. 490; Fl. N. Y. 1. 213. Spreng. Syst. 2. 532. Seringe, DC. Prodr. 2. 566. Audubon, Birds, t. **123**. Hook. Fl. Bor.-Am. 1. 183. Don, Mill. 2. 539. Beck, Bot. 104. Spach, Hist. Veg. 1. 459. Darling. Fl. Cestr. 309. Torr. & Gray, Fl. 1. 449. Eat. & Wr. 400. Dietr. 3. 175. Loud. Arb. 2. 745, f. **463**. Emerson, Trees of Mass. 428. Richard. Arct. Exped. 426. Curtis, Bot. N. Car. 88. Chapman, 124. Gray, Manual, 156. Traill, Canad. Fl. 25, t. **2**. Focke, Batogr. Abandl. 146.

R. pedatus. Smith, Icon. Pl. t. **63** (Usteri, Ann. Bot. 12. 43). Willd. Spec. 1088. Poir. Dict. 6. 239. Persoon, 2. 52. Pursh, 349. Hook. Fl. Bor.-Am. 181, t. **61**. Don, Mill. 2. 539. Torr. & Gray, Fl. 1. 452. Eat. & Wr. 400. Dietr. 3. 174. Ledeb. Fl. Ross. 2. 70. Newberry, Pac. R. Rep. 6. 71. Pl. Bourgeau, 256. Rothr. Fl. Alask. 445. Gray, Proc. Am. Acad. 8. 381. Focke, Batogr. Abhandl. 145. Brew. & Wats. Bot. Calif. 1. 172.

Dalibarda pedata. Stephan, Mem. Soc. Mosc. 1. 92. Spreng. Grundz. 516; Syst. 2. 526.

Comaropsis pedata. DC. Prodr. 2. 555. Bongard, Veg. Sitch. 134. Don, Mill. 529. Presl, Epimel. Bot. 196.

Ameton pedatum. Raf. Sylv. Tellur. Mant. 161.

R. saxatilis. Linn. Spec. 494. See syn. in Ledeb. Fl. Ross. 2. 69; Hook. f. Arct. 1. 289 & 325; Pritzel, Ind. Icon. 957. — Poir. Dict. 6. 237. Spreng. Syst. 2. 532. Seringe, DC. Prodr. 2. 564. Torr. & Gray, Fl. 1. 452. Lange, Pl. Groenl. 134. Maximowicz, Bull. Acad. Petersb. 17. 148 (Mélang. Biol. 8. 375). Focke, Batogr. Abhandl. 146.

R. spectabilis. Pursh, 348, t. **16**. Poir. Suppl. 4. 695. Spreng. Syst. 2. 532. Seringe, DC. Prodr. 2. 559. Cham. & Schlecht. in Linnæa, 2. 6. Hook. Fl. Bor.-Am. 1. 178. Lodd. Bot. Cab. t. **1602**. Bongard, Veg. Sitch. 131. Lindl. Bot. Reg. 17, t. **1424**. Don, Mill. 2. 533. Spach, Hist. Veg. 1. 455. Maund, Bot. Gard. 12, t. **568**. Torr. & Gray, Fl. 1. 454. Eat. & Wr. 400. Dietr. 3. 168. Ledeb. Fl. Ross. 2. 67. Loud. Arb. 2. 741, f. **458**. Presl, Epimel. Bot. 197. Richard. Arct. Exped. 426. Newberry, Pac. R. Rep. 6. 71. Cooper, same, 12. 31 & 60. Rothr. Fl. Alask. 445. Boland. Cat. 11. Maximowicz, Bull. Acad. Petersb. 17. 155 (Mélang. Biol. 8. 386). Gray, Proc. Am. Acad. 8. 381. Torrey, Bot. Wilkes, 291. Focke, l. c. 148. Brew. & Wats. Bot. Calif. 1. 172.

R. stenopetalus. Fisch. Choris Voy. 10. To *R. stellatus* by Bongard, l. c.

Var. **Menziesii.** Watson, Bot. Calif. 1. 172.

R. Menziesii. Hook. Fl. Bor.-Am. 1. 179. Don, Mill. 2. 531. Hook. & Arn. Bot. Beechey, 140. Eat. & Wr. 401. Dietr. 3. 167. Presl, Epimel. Bot. 197. Cooper, Pac. R. Rep. 12. 59.

R. ursinus. Torr. & Gray, Fl. 1. 456, in part.

R. stellatus. Smith, Icon. Pl. t. **64** (Usteri, Ann. Bot. 12. 42). Willd. Spec. 2. 1089. Poir. Dict. 6. 238. Persoon, 2. 52. Pursh, 349. Spreng. Syst. 2. 532. Seringe, DC. Prodr. 2. 565. Cham. & Schlecht. in Linnæa, 2. 8. Hook. Fl. Bor.-Am. 1. 183. Schlecht. in Linnæa, 6. 590. Don, Mill. 2. 539. Spach, Hist. Veg. 1. 459. Torr. & Gray, Fl. 1. 451. Eat. & Wr. 401. Walp. Rep. 2. 23. Dietr. 3. 174. Ledeb. Fl. Ross. 2. 71. Presl, Epimel. Bot. 197. Richard. Arct. Exped. 427. Focke, l. c. 146.

Manteia stellata. Raf. Sylv. Tellur. Mant. 161.

R. strigosus. Michx. Fl. 1. 297. Poir. Dict. 6. 243. Persoon, 2. 51. Pursh, 346. Bigel. Fl. Bost. 122. Richard. Frankl. Journ. 2 ed. 19; Arct. Exped. 426. Torrey, Fl. U. S. 488; Fl. N. Y. 1. 214; Frem. Rep. 89; Bot. Wilkes, 290. Spreng. Syst. 2. 531. Seringe, DC. Prodr. 2. 557. Hook. Fl. Bor.-Am. 1. 177. Don, Mill. 2. 531. Beck, Bot. 102. Torr. & Gray, Fl. 1. 453. Eat. & Wr. 400. Dietr. 3. 16[illegible]. Loud. Arb. 2. 736. Gray, Pl. Fendl. 42; Pac. R. Rep. 12. 43; Manual, 157; Am. Journ. Sci. 3. 5. 479. Seem. Bot. Herald, 52 & 282. Engelm. Pl. Upp. Miss. 19[illegible]. Pl. Bourgeau, 256. Porter, Hayd. Rep. 1870, 475; 1871, 482; Fl. Col. 34. Watson, King's Rep. 5. 82 & 420; Pl. Wheeler, 8. Coulter, Hayd. Rep. 1872, 765. Rothr. Pl. Wheeler, 37.

R. Pennsylvanicus. Poir. Dict. 6. 246. Persoon, 2. 51.

R. Idæus. Pursh, 346. Nutt. Genera, 1. 308. Schrank, Pfl. Lab. 26. Torrey, Fl. U. S. 487. Meyer, Pl. Lab. 78. Beck, Bot. 102. Wood, Cl.-Book, 340; Bot. & Fl. 105. Gray, Am. Journ. Sci. 2. 33. 411.

R. Idæus, var. *Canadensis.* Richard. Frankl. Journ. 11.

R. borealis. Spach; fide Focke, l. c. 147.

R. Idæus, var. *strigosus.* Maximowicz, Bull. Acad. Petersb. 17. 161 (Mélang. Biol. 8. 394), with syn. Focke, l. c. 147 & 156.

R. triflorus. Richard. Frankl. Journ. 2 ed. 19; Arct. Exped. 427. Hook. Fl. Bor.-Am. 1. 181, t. 62. Don, Mill. 2. 538. Torr. & Gray, Fl. 1. 452. Torrey, Fl. N. Y. 1. 214. Dietr. 3. 174. Gray, Proc. Acad. Philad. 1863, 61; Manual, 157. Pl. Bourgeau, 256. Maxim. l. c. 148 (376). Focke, l. c. 146 & 156.

R. saxatilis, var. *Canadensis.* Michx. Fl. 1. 298. Pursh, 349. Richard. Frankl. Journ. 11. Torrey, Fl. U. S. 490. Beck, Bot. 104.

R. saxatilis, var. *Americanus.* Persoon, 2. 52. Seringe, l. c. 565. Don, l. c.

? *R. flagellaris.* Schrank, Pfl. Lab. 26. Meyer, Pl. Lab. 78.

Cylactis montana. Raf. Am. Journ. Sci. 1. 1. 377. Spreng. Neue Entdeck. 2. 207. Seringe, DC. Prodr. 2. 568.

Cylactis lyncemontana. Raf. Journ. Phys. 1819, 97.

R. saxatilis. Bigel. Fl. Bost. 2 ed. 201. Eat. & Wr. 400.

R. Canadensis. Torrey, Fl. U. S. 488.

R. ægopodioides. Seringe, DC. Prodr. 2. 565. Beck, Bot. 104.

R. mucronatus. Seringe, l. c. excl. descr. Hook. Fl. Bor.-Am. 1. 182. Don, Mill. 2. 538. Eat. & Wr. 401. Dietr. 3. 174.

R. trivialis. Michx. Fl. 1. 296. Poir. Dict. 6. 241. Persoon, 2. 51. Ait. f. Hort. Kew. 3. 269. Elliott, 1. 569. Don, Mill. 2. 537. Hook. Comp. Bot. Mag. 1. 25, excl. var. γ. Torr. & Gray, Fl. 1. 456; Pac. R. Rep. 2. 164. Eat. & Wr. 400. Nees, Pl. Neuwied, 8. Gray, Pl. Thurb. 301; Manual, 158; Hall's Pl. Texas, 9. Torrey, Pac. R. Rep. 4. 85; Mex. Bound. 64. Curtis, Bot. N. Car. 88. Chapman, 125. Focke, l. c. 152.

R. hispidus. Marshall, Arbust. 137. Walter, 149. Seringe, DC. Prodr. 2. 564, excl. syn. Don, Mill. 2. 537. Beck, Bot. 103.

R. flagellaris. Hook. Comp. Bot. Mag. 1. 24.

R. ursinus. Cham. & Schlecht. in Linnæa, 2. 11. Don, Mill. 2. 540. Torr. & Gray, Fl. 1. 456, in part. Walp. Rep. 2. 23. Dietr. 3. 175. Benth. Bot. Sulph. 14. Presl, Epimel. Bot. 197. Torrey, Pac. R. Rep. 4. 85 & 7. 11; Mex. Bound. 64. Newberry, Pac. R. Rep. 6. 71. Boland. Cat. 11. Focke, Batogr. Abhandl. 153 & 160. Brew. & Wats. Bot. Calif. 1. 172.

R. vitifolius. Cham. & Schlecht. l. c. 10. Don, Mill. 2. 540. Torr. & Gray, Fl. 1. 450. Walp. Rep. 2. 22. Dietr. 3. 175. Torrey, Pac. R. Rep. 4. 85. Anderson, Cat. Pl. Nev. 120. Boland. Cat. 11. Focke, l. c. 148 & 156.

R. macropetalus. Dougl.; Hook. Fl. Bor.-Am. 1. 178, **t. 59.** Don, Mill. 2. 531. Hook. & Arn. Bot. Beechey, 140 & 338. Torr. & Gray, Fl. 1. 457. Eat. & Wr. 401. Walp. Rep. 2. 23. Dietr. 3. 167. Loud. Arb. 2. 746, **f. 465.** Presl, Epimel. Bot. 197. Torrey, Pac. R. Rep. 4. 85; Bot. Wilkes, 291. Newberry, Pac. R. Rep. 6. 71. Cooper, same, 12. 30 & 60. Bolander, Proc. Calif. Acad. 3. 80; Cat. 11. Gray, Proc. Am. Acad. 8. 382. Focke, l. c. 148.

R. villosus. Ait. Hort. Kew. 2. 210. Willd. Spec. 2. 1085. Michx. Fl. 1. 297. Poir. Dict. 6. 243. Persoon, 2. 51. Pursh, 346. Bigel. Fl. Bost. 122; Med. Bot. 2. 160, **t. 38.** Barton, Mat. Med. **t. 39.** Nutt. Genera, 1. 308. Elliott, 1. 567. Torrey, Fl. U. S. 487; Fl. N. Y. 1. 215; Emory's Rep. 408. Spreng. Syst. 2. 529. Seringe, DC. Prodr. 2. 563. Audubon, Birds, **t. 29** & **128.** Hook. Fl. Bor.-Am. 1. 179. Don, Mill. 2. 537. Beck, Bot. 103. Darling. Fl. Cestr. 307. Lindl. Fl. Med. 227. Torr. & Gray, Fl. 1. 454. Eat. & Wr. 400. Dietr. 3. 173. Richard. Arct. Exped. 426. Engelm. Pl. Upp. Miss. 191. Gray, Pac. R. Rep. 12. 43; Manual, 157. Curtis, Bot. N. Car. 88. Chapman, 125. Focke, l. c. 153 & 160.

R. fruticosus. Marsh. Arbust. 137. Walter, 149.

R. argutus. Link, Enum. 2. 60. Seringe, DC. Prodr. 2. 563. Don, Mill. 2. 537. Loud. Arb. 2. 744.

Var. frondosus. Torrey, Fl. U. S. 487; Fl. N. York, 1. 215. Torr. & Gray, Fl. 1. 454. Walp. Rep. 2. 23. Gray, Manual, 157.

R. inermis. Willd. Enum. 549? Pursh, 348. Poir. Suppl. 4. 694. Spreng. Syst. 2. 532. Eat. & Wr. 400. Focke, l. c. 155.

R. frondosus. Bigel. Fl. Bost. 2 ed. 190. Beck, Bot. 103. Eat. & Wr. 400.

R. flagellaris, var. *inermis.* Seringe, DC. Prodr. 2. 559.

R. suberectus. Hook. Fl. 1. 179. Don, Mill. 2. 534, in part. Eat. & Wr. 401.

Var. humifusus. Torr. & Gray, Fl. 1. 455. Torrey, Fl. N. Y. 1. 215. Walp. Rep. 2. 23. Gray, Manual, 157.

? *R. Enslenii & floridus.* Tratt. Ros. 63 & 73. Seringe, DC. Prodr. 2. 564 & 566. Don, Mill. 2. 538 & 539.

R. acaulis; arcticus.
ægopodioides; triflorus.
arcticus; Canadensis.
argutus; villosus.
borealis; strigosus.
Canadensis; triflorus.
Enslenii; villosus.
eriocarpus; occidentalis.
flagellaris; Canadensis, triflorus, trivialis, villosus.
floridus, frondosus & fruticosus; villosus.
glaucifolius; leucodermis.
hispidus; trivialis.
Idæus; occidentalis, strigosus.
inermis; villosus.
leucodermis; occidentalis.
macropetalus; ursinus.
Menziesii; spectabilis.
mucronatus; triflorus.
Neo-Mexicanus; deliciosus.
R. obovalis & obovatus; hispidus.
occidentalis; leucodermis, neglectus.
parviflorus; Nutkanus.
parvifolius; cuneifolius.
Pennsylvanicus; strigosus.
pistillatus; arcticus.
procumbens; Canadensis.
propinquus; arcticus.
Rœzlii; deliciosus.
saxatilis; triflorus.
sempervirens & setosus; hispidus.
spectabilis; deliciosus.
stenopetalus; spectabilis.
strigosus; neglectus, nivalis.
suberectus; villosus.
trilobus; deliciosus.
trivialis; Canadensis.
ursinus; spectabilis.
velutinus; Nutkanus.
vitifolius; ursinus.

SIBBALDIA procumbens. Linn. Spec. 284. See syn. in Ledeb. Fl. Ro 2. 32; Pritzel, Ind. Icon. 1026. — Pursh, 211. Nutt. Genera, 1. 207. Roem Schult. Syst. 6. 709. Torrey, Fl. U. S. 330; Frem. Rep. 89. DC. Prodr. 2. 5 Cham. & Schlecht. in Linnæa, 2. 28. Hook. Fl. Bor.-Am. 1. 196. Don; Mill. 2. 5 Beck, Bot. 108. Torr. & Gray, Fl. 1. 433. Eat. & Wr. 424. C. A. Meyer in I precht, Beitr. Pfl. Russ. 6. 44. Oakes, Hovey's Mag. 13. 217. Engelm. Pl. U Miss. 191. Lange, Pl. Groenl. 134. Aschers. Fl. Lab. in Regensb. Flora, 43. 3 Hook. f. Arct. Pl. 289. Gray, Am. Journ. Sci. 3. 33. 411; Proc. Acad. Phil 1863, 61; Manual, 153. Rothr. Fl. Alask. 445; Pl. Wheeler, 37. Porter, Ha Rep. 1870, 475; 1871, 481; Fl. Col. 35. Brew. & Wats. Bot. Calif. 1. 180.

Potentilla procumbens, De Clairv. Benth. & Hook. Gen. Pl. 1. 671. Baill Hist. Pl. 1. 371, f. **423–427**. Wood, Bot. & Fl. 107. Watson, King's Rep. 5. 89.

SPIRÆA Aruncus. Linn. Spec. 490. See syn. in Ledeb. Fl. Ross. 2. Trautv. & Mey. Fl. Ochot. 32. [Pall. Fl. Ross. 1. 39, t. **26.**] — Michx. Fl. 1. 2 excl. var. Poir. Dict. 7. 355. Muhl. Cat. 51. Elliott, 1. 561. Cambess. Mon Spir. 43, t. **15**, f. **2** (Ann. Sci. Nat. 1. 1. 374). Hook. Fl. Bor.-Am. 1. 173; Co Bot. Mag. 1. 24. Bongard, Veg. Sitch. 131. Torr. & Gray, Fl. 1. 417. Ea Wr. 441. Torrey, Fl. N. Y. 1. 199; Bot. Wilkes, 286. Cooper, Pac. R. Rep. 12. Gray, Mem. Am. Acad. 6. 386; Manual, 150. Lesqx. Fl. Ark. 358. Chapman, Rothr. Fl. Alask. 485. Hussey, Torr. Bot. Bull. 6. 15. Brew. & Wats. Bot. C 1. 170.

S. Aruncus, var. *Americana*. Persoon, 2. 46. Pursh, 343. Torrey, Fl. U. 482; Ann. Lyc. N. Y. 2. 194. Seringe, DC. Prodr. 2. 545. Don, Mill. 2. 520. B Bot. 99.

S. betulifolia. Pallas, Fl. Ross. 1. 33, t. **16.** See syn. in Ledeb. Fl. Ross. 2. Trautv. & Mey. l. c. 31. — Pursh, 342. Cambess. l. c. 34 (368), t. **27.** Hook. Bor.-Am. 1. 172; Lond. Journ. Bot. 6. 217. Don, Mill. 2. 519. Torr. & Gray, 1. 414. Eat. & Wr. 441. Loud. Arb. 2. 725. Seem. Bot. Herald, 28. Richa Arct. Exped. 426. Newberry, Pac. R. Rep. 6. 71. Cooper, same, 12. 52. Hook Arct. Pl. 289. Pl. Bourgeau, 256. Rothr. Fl. Alask. 445. Porter, Hayd. R 1871, 481. Coulter, same, 1872, 764. Gray, Proc. Am. Acad. 8. 381. Torr Bot. Wilkes, 286. Brew. & Wats. Bot. Calif. 1. 169.

S. chamædrifolia, var. *media*. Pursh, 342. Cambess. l. c. 28 (362). Seringe, I Prodr. 2. 542. Hook. Fl. Bor.-Am. 1. 171. Hook. & Arn. Bot. Beechey, 123.

S. corymbosa. Raf. Préc. Découv. 36; Desv. Journ. Bot. 1814, 168; New Flo 3. 70. Poir. Suppl. 5. 222. Lodd. Bot. Cab. t. **671.** Torrey, Fl. U. S. 482. ringe, DC. Prodr. 2. 544. Don, Mill. 2. 519. Beck, Bot. 99. Spach, Hist. V 1. 438. Torr. & Gray, Fl. 1. 414. Eat. & Wr. 440. Dietr. 3. 126. Loud. A 2. 728. Gray, Manual, 149.

S. chamædrifolia. Cham. & Schlecht. in Linnæa, 2. 2, fide same, l. c. 6. 5 Eat. & Wr. 440. Richard. Arct. Exped. 426. Hook. f. Arct. Pl. 289, in part.

S. chamædrifolia, var. *β*. Hook. Fl. Bor.-Am. 1. 171. Hook. & Arn. B Beechey, 123.

S. ostryfolia & repens. Raf. New Flora, 3. 69 & 70.

S. betulifolia, var. *corymbosa*. Engelm. Pl. Upp. Miss. 190.

Var. **rosea**. Gray, Proc. Am. Acad. 8. 381. Coulter, Hayd. Rep. 1872, 764.

S. cæspitosa. Nutt.; Torr. & Gray, Fl. 1. 418. Walp. Rep. 2. 51. Dietr. 3. 1 Gray, Pl. Fendl. 40; Pl. Wright. 1. 68; Ives's Rep. 11. Torrey, Pac. R. Rep. 4. Mex. Bound. 63. Newberry, Pac. R. Rep. 6. 71. Porter, Hayd. Rep. 1870, 47 1871, 481. Watson, King's Rep. 5. 81; Pl. Wheeler, 8. Brew. & Wats. l. c. 170

Var. **elatior.** Watson, King's Rep. 5. 81.

S. Douglasii. Hook. Fl. Bor.-Am. 1. 172; Bot. Mag. t. **5151.** Don, Mill. 2. 520. Raf. New Flora, 3. 68. Torr. & Gray, Fl. 1. 415. Eat. & Wr. 440. Walp. Rep. 2. 50. Dietr. 3. 126. Torrey, Frem. Rep. 314; Bot. Wilkes, 286. Fl. Serres, 2, t. 2. Paxton, Mag. Bot. 12. 195, t.; Fl. Gard. 2. 85, f. **178.** Revue Hort. 1846, t. **6.** Presl, Epimel. Bot. 195. Richard. Arct. Exped. 426. Durand, Pl. Pratten, 87. Newberry, Pac. R. Rep. 6. 71. Cooper, same, 12. 32 & 59. Pepin, Rev. Hort. 1862, 17. Wood, Bot. & Fl. 103. Gray, Proc. Am. Acad. 8. 381. Brew. & Wats. Bot. Calif. 1. 169.

Var. **Nobleana.** Watson, Bot. Calif. 1. 169.

? *S. cuneifolia.* Raf. New Flora, 3. 67.

S. Nobleana. Hook. Bot. Mag. t. **5169.** Lemaire, Ill. Hort. 8, t. **286.** Walp. Ann. 7. 852.

Var. **Menziesii.** Presl, Epimel. Bot. 195. Brew. & Wats. Bot. Calif. 1. 169.

S. Menziesii. Hook. Fl. Bor.-Am. 1. 173; Lond. Journ. Bot. 6. 218. Don, Mill. 2. 520. Torr. & Gray, Fl. 1. 415. Eat. & Wr. 440. Walp. Rep. 2. 50. Dietr. 3. 126. Cooper, Pac. R. Rep. 12. 59. Gray, l. c. Torrey, Bot. Wilkes, 286.

S. discolor. Pursh, 342. Poir. Suppl. 5. 222. Cambess. Monog. Spir. 41 (Ann. Sci. Nat. 1. 374). Spreng. Syst. 2. 502. Seringe, DC. Prodr. 2. 545. Don, Mill. 2. 520. Eat. & Wr. 441. Presl, Epimel. Bot. 195. Brew. & Wats. l. c. 1. 170.

Var. **ariæfolia.** Watson, Bot. Calif. 1. 170.

S. ariæfolia. Smith, Rees Cyc. Seringe, DC. Prodr. 2. 544. Hook. Fl. Bor.-Am. 1. 173; Lond. Journ. Bot. 6. 217. Lindl. Bot. Reg. 16, t. **1365.** Don, Mill. 2. 520. Spach, Hist. Veg. 1. 432. Hook. & Arn. Bot. Beechey, 338. Torr. & Gray, Fl. 1. 416. Dietr. 3. 127. Loud. Arb. 2. 731, f. **446, 447.** Benth. Pl. Hartw. 309. Gray, Pl. Fendl. 40; Proc. Am. Acad. 8. 381. Richard. Arct. Exped. 426. Torrey, Pac. R. Rep. 4. 83; Mex. Bound. 63; Bot. Wilkes, 286. Newberry, Pac. R. Rep. 6. 71. Cooper, same, 12. 30 & 59. Bolander, Proc. Calif. Acad. 3. 79; Cat. 10. Wood, Bot. & Fl. 103.

Var. **dumosa.** Watson, l. c.

S. discolor. Torrey, Ann. Lyc. N. Y. 2. 194. Gray, Am. Journ. Sci. 2. 33. 411.

Schinzonotus discolor. Raf. New Flora, 3. 75.

S. ariæfolia, var. *discolor.* Torr. & Gray, Fl. 1. 416.

S. dumosa. Nutt.; Hook. in Lond. Journ. Bot. 6. 217. Gray, Pl. Fendl. 40; Proc. Acad. Philad. 1863, 61. Torrey, Stansb. Rep. 387, t. **4**; Mex. Bound. 63. Durand, Fl. Utah, 163. Anderson, Cat. Pl. Nev. 120. Porter, Hayd. Rep. 1870, 475; Fl. Col. 33. Watson, King's Rep. 5. 80. Coulter, Hayd. Rep. 1872, 764. Rothr. Pl. Wheeler, 37.

S. lobata. Jacquin, Hort. Vindob. 1. 38, t. **88.** Murray, Syst. 472. Willd. Spec. 2. 1062; Enum. 542. Michx. Fl. 1. 294. Poir. Dict. 7. 358. Persoon, 2. 47. Pursh, 343. Elliott, 1. 561. Cambess. l. c. 49 (383). Torrey, Fl. U. S. 483. Spreng. Syst. 2. 503. Seringe, DC. Prodr. 2. 545. Don, Mill. 2. 521. Beck, Bot. 99. Spach, Hist. Veg. 1. 445. Torr. & Gray, Fl. 1. 416. Eat. & Wr. 441. Dietr. 3. 127. Chapman, 121. Regel, Gartenfl. 1863, 145, t. **397.** Gray, Manual, 149.

S. palmata. Linn. f. Suppl. 262, not Thunb.

S. Kamtschatica. Pallas, Fl. Ross. 1. 41, t. **28.** See syn. in Ledeb. Fl. Ross. 2. 19. — Willd. Spec. 2. 1062. Cambess. l. c. 51 (385). Spreng. Syst. 2. 503. Seringe, DC. Prodr. 2. 545. Torr. & Gray, Fl. 1. 416.

S. Millefolium. Torrey, Pac. R. Rep. 4. 83, t. **5.** Coulter, Hayd. Rep. 1872, 764. Watson, Pl. Wheeler, 8. Brew. & Wats. Bot. Calif. 1. 179.

Chamæbatia foliolosa. Newberry, Pac. R. Rep. 6. 73.

S. pectinata. Torr. & Gray, Fl. 1. 417. Walp. Rep. 2. 51. Ledeb. Fl. 1 2. 19. Hook. f. Arct. Pl. 289. Benth. & Hook. Gen. Pl. 1. 611. Rothr. Fl. A 445. Brew. & Wats. Bot. Calif. 1. 171.

Saxifraga pectinata. Pursh, 312. Poir. Suppl. 5. 77. DC. Prodr. 4. 33. E Wr. 415.

Eriogynia pectinata. Hook. Fl. Bor.-Am. 1. 255, t. 88. Don, Mill. 3. 226. Fl. Tellur. 2. 71.

Luetkea sibbaldioides. Bongard, Veg. Sitch. 130, t. 2. Presl, Repert. Bot. 1

Saxifraga cæspitosa. Gray, Proc. Am. Acad. 8. 383.

S. salicifolia. Linn. Spec. 489. See syn. in Willd. Spec. 2. 1055; Ledeb Ross. 2. 15; Trautv. & Meyer, Fl. Ochot. 31; Pritzel, Index Icon. Bot. 1059. – Hort. Kew. 2. 198. Michx. Fl. 1. 293. Poir. Dict. 7. 349. Pursh, 341. E 1. 560. Torrey, Fl. U. S. 481; Fl. N. Y. 1. 198. Cambess. l. c. 38 (372). Sp Syst. 2. 503. Seringe, DC. Prodr. 2. 544. Hook. Fl. Bor.-Am. 1. 172. Beck 99. Raf. New Flora, 3. 64. Darling. Fl. Cestr. 299. Torr. & Gray, Fl. 1 Eat. & Wr. 440. Emerson, Trees of Mass. 427. Seem. Bot. Herald, 52. Ric Arct. Exped. 426. Parry, Pl. Minn. 611. Curtis, Bot. N. Car. 103. Cha 121. Hook. f. Arct. Pl. 289. Pl. Bourgeau, 256. Rothr. Fl. Alask. 445. Manual, 149.

S. alba. DuRoi, Harbk. 2. 430; Obs. Bot. 14. Moench, Meth. 662. Beitr. 7. 137. Bigel. Fl. Bost. 196. Watson, Dendr. Brit. t. 133.

S. tomentosa, var. *alba.* Marsh. Arbust. 147.

S. hypericifolia. Marsh. Arbust. 146, not Linn. Pursh, 341. Torrey, Fl. 481. Beck, Bot. 98. Eat. & Wr. 440.

S. carpinifolia. Willd. Enum. 540. Guimp. Otto & Hayne, t. 7. Don, 2. 520. Spach, Hist. Veg. 1. 440. Raf. New Flora, 3. 65.

S. crenata. Muhl. Cat. 51, not Linn. Torrey, Fl. U. S. 482. Eat. & Wr.

S. hypericifolia, var. *Plunkenetia.* Seringe, DC. Prodr. 2. 543. Hook. Fl. Am. 1. 171.

S. paniculata. Don, Mill. 2. 520. Spach, Hist. Veg. 1. 441.

S. amœna, ciliata, flexuosa, heterophylla, obovata & ovata. Raf. New Flora, 3. 6

S. tomentosa. Linn. Spec. 489. DuRoi, Harbk. 2. 433. Wangenh. Amer Marsh. Arbust. 147. Ait. Hort. Kew. 2. 198. Willd. Arb. 371; Spec. 2. Michx. Fl. 1. 293. Poir. Dict. 7. 350. Persoon, 2. 46. Pursh, 341. Bigel Bost. 196. Elliott, 1. 560. Torrey, Fl. U. S. 481; Fl. N. Y. 1. 199. Cambess 39 (373). Spreng. Syst. 2. 502. Seringe, DC. Prodr. 2. 544. Hook. Fl. Bor. 1. 172. Raf. Med. Bot. 2. 91, f. 88; New Flora, 3. 62. Don, Mill. 2. 520. I Bot. 99. Spach, Hist. Veg. 1. 441. Torr. & Gray, Fl. 1. 415. Eat. & Wr. Dietr. 3. 126. Loud. Arb. 2. 730. Emerson, Trees of Mass. 427. Richard. Exped. 426. Parry, Pl. Minn. 611. Curtis, Bot. N. Car. 103. Chapman, Gray, Manual, 149.

S. ferruginea, glomerata, parvifolia & rosea. Raf. New Flora, 3. 62 & 63.

S. alba & amœna; salicifolia.
ariæfolia; discolor.
Aruncus; Astilbe decandra.
Californica; Vauquelinia Torreyi.
capitata; Neillia opulifolia.
carpinifolia & ciliata; salicifolia.
S. chamædrifolia & corymbosa; be folia.
crenata; salicifolia.
cuneifolia; Douglasii.
dumosa; discolor.
ferruginea & glomerata; tomento

S. flexuosa, heterophylla & hypericifolia; salicifolia.
Menziesii; Douglasii.
monogyna; Neillia Torreyi.
Nobleana; Douglasii.
obovata & ovata; salicifolia.
opulifolia; Neillia opulifolia & Torreyi.
ostryfolia; betulifolia.
S. palmata; lobata.
paniculata; salicifolia.
parvifolia; tomentosa.
repens; betulifolia.
rosea; tomentosa.
stipulacea & stipulata; Gillenia stipulacea.
tomentosa; salicifolia.
trifoliata; Gillenia trifoliata.

VAUQUELINIA Torreyi. Watson, Proc. Am. Acad. 11. 147. Brew. & Wats. Bot. Calif. 1. 169.

Spiræa Californica. Torrey, Emory's Rep. 140.

V. corymbosa. Torrey, Mex. Bound. 64, not Corr.

WALDSTEINIA fragarioides. Trattinick, Ros. Mon. 3. 107. Torr. & Gray, Fl. 1. 426. Torrey, Fl. N. Y. 1. 204. Chapman, 123. Gray, Manual, 153.

Dalibarda fragarioides. Michx. Fl. 1. 300, **t. 28.** Poir. Dict. 6. 250. Persoon, 2. 53. Ait. f. Hort. Kew. 3. 271. Sims, Bot. Mag. **t. 1567.** Pursh, 350. Lodd. Bot. Cab. **t. 408.** Elliott, 1. 571. Bigel. Fl. Bost. 2 ed. 202. Torrey, Fl. U. S. 491. Spreng. Syst. 2. 526. Eat. & Wr. 220.

Comaropsis fragarioides. Nestler, Monogr. Potent. 8, **t. 1.** DC. Prodr. 2. 555. Hook. Fl. Bor.-Am. 1. 177. Don, Mill. 2. 529. Beck, Bot. 102.

Waldsteinia Doniana. Tratt. Ros. 3. 109.

Comaropsis Doniana. DC. Prodr. 2. 555.

W. lobata. Torr. & Gray, Fl. 1. 426. Dietr. 3. 124. Chapman, 123. Wood, Cl.-Book, 341; Bot. & Fl. 107.

Dalibarda lobata. Baldwin in Elliott, 1. 571. Hook. Icon. **t. 76.** Eat. & Wr. 220. Walp. Rep. 2. 13.

SAXIFRAGACEÆ.

ASTILBE decandra. D. Don, Prodr. Fl. Nepal. 211. Don, Mill. 3. 229. Torr. & Gray, Fl. 1. 589. Gray, Am. Journ. Sci. 1. 42. 37 (Lond. Journ. Bot. 2. 122); Manual, 167. Chapman, 154.

Spiræa Aruncus, var. *hermaphrodita.* Michx. Fl. 1. 294.

Tiarella biternata. Vent. Jard. Malm. **t. 54** (Schrad. Journ. Bot. 1807, 85). Poir. Dict. 7. 158. Persoon, 1. 491. Pursh, 313. Haworth, Enum. Saxif. 59. Elliott, 1. 513. Spreng. Syst. 2. 361. DC. Prodr. 4. 51. Eat. & Wr. 452.

Hoteia biternata. Morr. & Decaisne, Ann. Sci. Nat. 2. 2. 316, **t. 11, f. 11, 12** (seeds). Spach, Hist. Veg. 5. 65. Decaisne, Ann. Sci. Nat. 2. 15. 36.

Blondia biternata. Raf. Fl. Tellur. 2. 75.

BOLANDRA Californica. Gray, Proc. Am. Acad. 7. 241; Bot. Calif. 1. 196. Baillon, Hist. Pl. 3. 331.

BOYKINIA aconitifolia. Nutt. in Journ. Acad. Philad. 7. 113. Torr. & Gray, Fl. 1. 576. Gray, Am. Journ. Sci. 1. 42. 21 (Lond. Journ. Bot. 1. 227); Manual, 169; Bot. Calif. 1. 196. Walp. Rep. 2. 362. Chapman, 153.

Therofon napelloides. Raf. New Flora, 4. 66.

Saxifraga aconitifolia. Fielding, Sert. Pl. **t. 57.** Engler, Monogr. Saxifr. 111.

B. major. Gray, Bot. Calif. 1. 196.

B. occidentalis, var. *elata.* Gray, Proc. Am. Acad. 8. 383.

B. occidentalis. Torr. & Gray, Fl. 1. 577 & 698. Walp. Rep. 2. 367. Gray, Proc. Am. Acad. 8. 383; Bot. Calif. 1. 196.

Saxifraga elata. Nutt.; Torr. & Gray, Fl. 1. 575. Walp. l. c. Engler, l. c.

B. Richardsoni. Gray, Am. Journ. Sci. 1. 42. 21 (Lond. Journ. Bot. 1. 228); Bot. Calif. 1. 196. Rothr. Fl. Alask. 447.

Saxifraga Richardsonii. Hook. Fl. Bor.-Am. 1. 247. Don, Mill. 3. 209. Torr. & Gray, Fl. 1. 575. Eat. & Wr. 415. Dietr. 2. 1528. Walp. Rep. 2. 367. Ledeb. Fl. Ross. 2. 217. Seem. Bot. Herald, 32. Hook. f. Arct. Pl. 292. Engler, l. c. 110.

Hemieva Richardsonii. Raf. New Flora, 4. 66.

Saxifraga Nelsoniana. Hook. & Arn. Bot. Beechey, 124, t. **29**, not Don.

CARPENTERIA Californica. Torrey, Pl. Frem. 12, t. **7** (Regensb. Flora, 36. 706); Proc. Am. Assoc. 3. 192. Gray, Am. Journ. Sci. 2. 16. 424; Bot. Calif. 1. 203. Walp. Ann. 4. 820. Baillon, Hist. Pl. 3. 349.

CHRYSOSPLENIUM alternifolium. Linn. Spec. 398. See syn. in Ledeb. Fl. Ross. 2. 226; Middend. Fl. Taimyr. 45; Trautv. & Meyer, Fl. Ochot. 42; Pritzel, Ind. Icon. Bot. 264. — R. Brown, Parry's 1st Voy. 275. Richard. Frankl. Journ. 2 ed. 19. Hook. in Parry's 2d Voy. 395; Fl. Bor.-Am. 1. 241. Cham. in Linnæa, 6. 557. Don, Mill. 3. 227. Hook. & Arn. Bot. Beechey, 124. Torr. & Gray, Fl. 1. 589. Eat. & Wr. 196. Dietr. 2. 1539. Seem. Bot. Herald, 32. Hook. f. Journ. Linn. Soc. 1. 117 & 122; Arct. Pl. 291 & 328. Gray, Proc. Acad. Philad. 1863, 62. Rothr. Fl. Alask. 447. Porter, Fl. Col. 40.

C. Americanum. Schweinitz in Hook. Fl. 1. 242. Don, Mill. 3. 227. Darlington, Fl. Cestr. 270. Torr. & Gray, Fl. 1. 589. Dietr. 2. 1539. Torrey, Fl. N. Y. 1. 258. Maximowicz, Prim. Fl. Amur. 121. Chapman, 154. Gray, Manual, 17[illegible].

C. oppositifolium. Walter, 140, not Linn. Michx. Fl. 1. 269. Pursh, 269. Nutt. Genera, 1. 254. Elliott, 1. 511. Torrey, Fl. U. S. 445. Bigel. Fl. Bost. 154. DC. Prodr. 2. 48, in part. Beck, Bot. 138. Eat. & Wr. 196.

C. glechomæfolium. Nutt.; Torr. & Gray, Fl. 1. 589. Walp. Rep. 2. 369. Cooper, Pac. R. Rep. 12. 63. Torrey, Bot. Wilkes, 312.

C. oppositifolium, var. *Scouleri.* Hook. Fl. Bor.-Am. 1. 242. Don, Mill. 3. 227. Dietr. 2. 1539.

DECUMARIA barbara. Linn. Spec. 2 ed. 1663. Ait. Hort. Kew. 2. 230. Bosc, Mem. Soc. Par. 1. 76, t. **13**. Lam. Ill. 2. 521, t. **403**. Willd. Spec. 2. 850; Enum. 516. Persoon, 2. 4. Poir. Suppl. 2. 459. Pursh, 328. Elliott, 1. 533. Sprengel Syst. 2. 460. DC. Prodr. 3. 206. Don, Mill. 2. 808. Torr. & Gray, Fl. 1. 593. Eat. & Wr. 221. Dietr. 3. 86. Loud. Arb. 2. 955, f. **679, 680**. Curtis, Bot. N. Car. 119. Chapman, 155. Wood, Cl.-Book, 374; Bot. & Fl. 116. Baillon, Hist. Pl. 3. 348, f. **404**.

Forsythia scandens. Walter, 154.

D. sarmentosa. Bosc, Willd., & Pursh, ll. cc. Elliott, 1. 534. Eat. & Wr. 221.

D. radicans. Moench, Meth. 17.

D. Forsythia. Michx. Fl. 1. 282.

FENDLERA rupicola. Engelm. & Gray; Gray, Pl. Wright. 1. 77, t. **5**, & 2. 64; Pl. Thurb. 300; Ives's Rep. 15. Torrey, Pac. R. Rep. 4. 4 & 90; Mex. Bound. 69. Walp. Ann. 4. 820. Baillon, Hist. Pl. 3. 349. Brandegee, Fl. S. W. Col. 236.

Var. **Wrightii.** Gray, Pl. Wright. 1. 77. Walp. Ann. 4. 820.

HEUCHERA Americana. Linn. Spec. 226. Hill, Veg. Syst. 13, t. **43**, f. 1. Walter, 111. Ait. Hort. Kew. 1. 320. Lam. Dict. 3. 127. Willd. Spec. 1. 1328; Enum. 295. Persoon, 1. 290. Schkuhr, Handb. t. **58**. Elliott, 1. 337. Roem. & Schult. Syst. 6. 215. Haworth, Enum. Sax. 61. James, Long's Exped. 2. 96.

Torrey, Fl. U. S. 1. 290; Ann. Lyc. N. Y. 2. 204; Fl. N. Y. 1. 256. Bigel. Fl. Bost. 2 ed. 106. Spreng. Syst. 1. 866. Seringe, DC. Prodr. 4. 51. Beck, Bot. 139. Don, Mill. 3. 229. Spach, Hist. Veg. 5. 67. Lindl. Fl. Med. 273. Darling. Fl. Cestr. 175. Torr. & Gray, Fl. 1. 557. Eat. & Wr. 268. Dietr. 2. 923. Hook. in Lond. Journ. Bot. 6. 232. Engelm. Pl. Upp. Miss. 193. Agardh, Theor. Syst. t. **7**, f. **13**, **14**. Lesqx. Fl. Ark. 362. Chapman, 152. Gray, Manual, 109. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 326.

H. scapigera. Moench, Meth. 674.

H. cortusa. Michx. Fl. 1. 171. Willd. Enum. 296.

H. viscida. Pursh, 187. Poir. Suppl. 5. 700. Raf. Med. Fl. 1. 243.

H. bracteata. Seringe, DC. Prodr. 4. 52. Don, Mill. 3. 230. Torr. & Gray, Fl. 1. 581. Eat. & Wr. 269. Gray, Pl. Wright. 2. 64; Am. Journ. Sci. 2. 33. 409; Proc. Acad. Philad. 1863, 62. Porter, Hayd. Rep. 1870, 475; Fl. Col. 40.

? *Tiarella trifoliata.* James, Cat. 181.

Tiarella (?) *bracteata.* Torrey, Ann. Lyc. N. Y. 2. 204. Eat. & Wr. 452.

Oreatrys bracteata. Raf. Fl. Tellur. 2. 74.

H. Curtisii. Gray, Am. Journ. Sci. 1. 42. 15 (Lond. Journ. Bot. 1. 221). Chapman, 152. A doubtful species.

H. caulescens, var. *β.* Torr. & Gray, Fl. 1. 578. Wood, Cl.-Book, 372.

H. cylindrica. Dougl.; Hook. Fl. Bor.-Am. 1. 236. Don, Mill. 3. 230. Lindl. Bot. Reg. 23, t. **1924**. Torr. & Gray, Fl. 1. 580. Walp. Rep. 2. 369. Dietr. 2. 923. Newberry, Pac. R. Rep. 6. 75. Cooper, same, 12. 62. Watson, King's Rep. 5. 94. Porter, Hayd. Rep. 1871, 482. Coulter, same, 1872, 766. Gray, Proc. Am. Acad. 8. 383; Bot. Calif. 1. 201. Torrey, Bot. Wilkes, 310.

H. ovalifolia. Nutt.; Torr. & Gray, Fl. 1. 581. Walp. Rep. 2. 370.

H. glabella. Torr. & Gray, Fl. 1. 581. Walp. Rep. 2. 370.

Yamala cylindrica. Raf. Fl. Tellur. 2. 75.

Var. **alpina.** Watson, King's Rep. 5. 94.

H. glabra. Willd.; Roem. & Schult. Syst. 6. 216. Seringe, DC. Prodr. 4. 52. Hook. Fl. Bor.-Am. 1. 236, t. **79**. Don, Mill. 3. 230. Torr. & Gray, Fl. 1. 579. Ledeb. Fl. Ross. 2. 220. Rothr. Fl. Alask. 447. Gray, Bot. Calif. 1. 201.

Tiarella colorans. Graham, Edinb. Phil. Journ. 1829, 349 (Litt.-Ber. zu Linnæa, 1830, 158).

H. divaricata. Fisch.; Seringe, DC. Prodr. 4. 51. Bongard, Veg. Sitch. 139. Don, Mill. 3. 230.

H. Hallii. Gray, Proc. Acad. Philad. 1863, 62. Porter, Fl. Col. 41.

H. hispida. Pursh, 188. Elliott, 1. 337. Roem. & Schult. Syst. 6. 216. Haworth, Enum. Sax. 62. Spreng. Syst. 1. 866. Seringe, DC. Prodr. 4. 52. Don, Mill. 3. 230. Torr. & Gray, Fl. 1. 579. Eat. & Wr. 268. Dietr. 2. 923. Gray, Am. Journ. Sci. 1. 42. 16 (Lond. Journ. Bot. 1. 221); Pl. Fendl. 54; Manual, 170. Engelm. Pl. Upp. Miss. 193. Chapman, 152.

H. Richardsonii. R. Brown, Frankl. Journ. 766, t. **29**. Spreng. Syst. 1. 866. Seringe, DC. Prodr. 4. 52. Torrey, Ann. Lyc. N. Y. 2. 204. Hook. Fl. Bor.-Am. 1. 237; Lond. Journ. Bot. 6. 232. Don, Mill. 3. 230. Torr. & Gray, Fl. 1. 580. Dietr. 2. 923. Fisch. & Mey. Ind. Sem. h. Petrop. 8. 63 (Litt.-Ber. zu Linnæa, 1842, 166). Parry, Pl. Minn. 613. Engelm. Pl. Upp. Miss. 193. Gray, Pac. R. Rep. 12. 43. Hook. f. Arct. Pl. 292. Pl. Bourgeau, 256.

H. lucida. Schlecht. Ind. Sem. h. Hal. 1848, 8 (Linnæa, 24. 186).

H. micrantha. Dougl.; Lindl. Bot. Reg. 15, t. **1302**. Seringe, DC. Prodr. 4. 667. Hook. Fl. Bor.-Am. 1. 236; Lond. Journ. Bot. 6. 231. Don, Mill. 3. 230.

Torr. & Gray, Fl. 1. 579. Eat. & Wr. 269. Schlecht. Ind. Sem. h. Hal. 1849, 7 (Ann. Sci. Nat. 3. 12. 361). Torrey, Pac. R. Rep. 4. 89; Mex. Bound. 69; Bot. Wilkes, 310. Cooper, Pac. R. Rep. 12. 62. Boland. Cat. 11. Gray, Proc. Am. Acad. 8. 383; Bot. Calif. 1. 201.

H. Barbarossa. Presl, Rel. Hænk. 2. 56. Don, Mill. 3. 230.

? *H. pilosissima.* Benth. Pl. Hartw. 311.

? *H. erubescens.* Braun & Bouché, Ind. Sem. h. Berol. 1871, Appx. 2.

H. parvifolia. Nutt.; Torr. & Gray, Fl. 1. 581. Walp. Rep. 2. 370. Gray, Pl. Fendl. 54; Pl. Wright. 2. 64; Am. Journ. Sci. 2. 33. 409; Proc. Acad. Philad. 1863, 62. Torrey, Mex. Bound. 69. Porter, Hayd. Rep. 1870, 475; 1871, 482; Fl. Col. 40. Watson, King's Rep. 5. 96. Coulter, Hayd. Rep. 1872, 766. Rothr. Pl. Wheeler, 38.

H. pilosissima. Fisch. & Mey. in Ind. Sem. h. Petrop. 5. 36 (Litt.-Ber. zu Linnæa, 1839, 110). Torr. & Gray, Fl. 1. 582. Walp. Rep. 2. 370. Boland. Cat. 11. Gray, Bot. Calif. 1. 201.

H. hispida. Hook. & Arn. Bot. Beechey, 347.

H. hirtiflora. Torr. & Gray, Fl. 1. 582. Walp. Rep. 2. 370.

H. pubescens. Pursh, 187. Poir. Suppl. 5. 700. Roem. & Schult. Syst. 6. 216. Haworth, Enum. Saxif. 61. Torrey, Fl. U. S. 291. Spreng. Syst. 1. 866. Seringe, DC. Prodr. 4. 52. Don, Mill. 3. 230. Beck, Bot. 139. Torr. & Gray, Fl. 1. 579. Eat. & Wr. 268. Dietr. 2. 923. Chapman, 152. Gray, Manual, 170.

H. pulcerulenta & reniformis. Raf. Med. Fl. 1. 243 & 244.

H. ribifolia. Fisch. & Lall. in Ind. Sem. h. Petrop. 8. 62 (Litt.-Ber. zu Linnæa, 1842, 166). Walp. Rep. 2. 370.

H. rubescens. Torrey, Sitgr. Rep. 160; Stansb. Rep. 388, t. 5 (Regensb. Flora, 36. 703); Mex. Bound. 69. Gray, Pl. Wright. 2. 63 & 64; Bot. Calif. 1. 200. Walp. Ann. 5. 29. Durand, Fl. Utah, 165. Watson, King's Rep. 5. 94. Porter, Hayd. Rep. 1871, 482. Coulter, same, 1872, 766. Kellogg, Proc. Calif. Acad. 5. 45. Parry, Am. Naturalist, 9. 270. Brandegee, Fl. S. W. Col. 236.

H. Rugelii. Shuttleworth; Kunze, Linnæa, 20. 43. Walp. Ann. 1. 337.

? *H. glauca.* Raf. Med. Fl. 1. 244.

H. sanguinea. Engelm. in Wisliz. Rep. 23. Gray, Pl. Wright. 2. 63. Walp. Ann. 3. 897.

H. villosa. Michx. Fl. 1. 172. Poir. Suppl. 3. 49. Pursh, 188. Roem. & Schult. Syst. 6. 216. Haworth, Enum. Saxif. 61. Spreng. Syst. 1. 867. Seringe, DC. Prodr. 4. 52. Raf. Med. Fl. 1. 244. Hook. Fl. Bor.-Am. 1. 236. Don, Mill. 3. 230. Spach, Hist. Veg. 5. 67. Torr. & Gray, Fl. 1. 578. Eat. & Wr. 269. Dietr. 2. 923. Gray, Am. Journ. Sci. 1. 42. 15 (Lond. Journ. Bot. 1. 221). Chapman, 152. Gray, Manual, 170.

H. caulescens. Pursh, 188. Poir. Suppl. 5. 700. Elliott, 1. 338. Roem. & Schult. Syst. 6. 216. Haworth, l. c. 62. Spreng. Syst. 1. 867. Seringe, DC. Prodr. 4. 52. Don, Mill. 3. 230. Torr. & Gray, Fl. 1. 578, excl. var. Eat. & Wr. 269. Dietr. 2. 923. Wood, Cl.-Book, 372; Bot. & Fl. 115.

H. acerifolia & squamosa. Raf. Med. Fl. 1. 241 & 244. Seringe, DC. Prodr. 4. 52. Don, Mill. 3. 231. Eat. & Wr. 269.

H. foliosa. Raf. Med. Fl. 244.

H. parviflora. Bartling, Ind. Sem. h. Goett. 1838 (Litt.-Ber. zu Linnæa, 1839, 96).

H. aceriſolia; villosa.
Barbarossa; micrantha.
Californica; Tiarella unifoliata.
caulescens; Curtisii, villosa.
Cortusa; Americana.
divaricata; glabra.
erubescens; micrantha.
foliosa; villosa.
glabella; cylindrica.
glauca; Rugelii.
hirtiflora & *hispida*; pilosissima.
longipetala; Tiarella unifoliata.
H. lucida; hispida.
Menziesii; Tolmiea Menziesii.
ovalifolia; cylindrica.
parviflora; villosa.
pilosissima; micrantha.
pulverulenta; pubescens.
reniformis & *ribifolia*; pubescens.
Richardsonii; hispida.
scapigera; Americana.
squamosa; villosa.
viscida; Americana.
——— ?; Sullivantia Ohioensis.

HYDRANGEA arborescens. Linn. Spec. 397. Ait. Hort. Kew. 2. 76. Lam. Dict. 3. 150; Ill. 2. 493, t. **370**, f. **1**. Smith, Icon. Pict. 1. 12, under *H. hortensis*. Sims, Bot. Mag. t. **437**. Willd. Spec. 2. 633; Enum. 457. Schkuhr, Handb. 1. 368, t. **119**. Spreng. Syst. 2. 360. DC. Prodr. 4. 14. Don, Mill. 3. 232. Spach, Hist. Veg. 5. 26. Torr. & Gray, Fl. 1. 591. Dietr. 2. 1525. Torrey, Nicol. Rep. 150. Loud. Arb. 2. 994, f. **748**. Curtis, Bot. N. Car. 100. Lesqx. Fl. Ark. 362. Chapman, 155. Gray, Manual, 166.

H. frutescens. Marsh. Arbust. 61. Moench. Meth. 1. 106.

H. vulgaris. Michx. Fl. 1. 268. Persoon, 1. 486. Poir. Suppl. 3. 71. Pursh, 309. Nutt. Genera, 1. 284. Elliott, 1. 509. Torrey, Fl. U. S. 442. Beck, Bot. 137. Raf. New Flora, 3. 77. Darling. Fl. Cestr. 269. Eat. & Wr. 276.

H. acuta, glauca, heterophylla & *rotundifolia*. Raf. New Flora, 3. 77 & 78.

Var. cordata. Torr. & Gray, Fl. 1. 591.

H. cordata. Pursh, 309. Elliott, 1. 509. Watson, Dendr. Brit. t. **42**. Spreng. Syst. 2. 360. DC. Prodr. 4. 14. Don, Mill. 3. 232. Raf. New Flora, 3. 78. Spach, Hist. Veg. 5. 26. Eat. & Wr. 276. Dietr. 2. 1525. Loud. Arb. 2. 995, f. **749**.

H. vulgaris, var. *cordata*. Torrey, Ann. Lyc. N. Y. 2. 205.

H. amplifolia. Raf. l. c. 78.

H. quercifolia. Bartram, Trav. 382, t. **7**. Willd. Spec. 2. 634. Sims, Bot. Mag. t. **975**. Ait. f. Hort. Kew. 3. 63. Poir. Suppl. 3. 71. Pursh, 309. Nouv. Duham. 6. 262, t. **78**. Nutt. Genera, 1. 284. Elliott, 1. 510. Spreng. Syst. 2. 361. DC. Prodr. 4. 14. Audubon, Birds, t. **119**. Don, Mill. 3. 233. Tausch, Regensb. Flora, 17. 493. Hook. Comp. Bot. Mag. 1. 46. Raf. New Flora, 3. 79. Torr. & Gray, Fl. 1. 592. Eat. & Wr. 276. Dietr. 2. 1525 (as *H. quinquefolia*). Loud. Arb. 2. 995, f. **751**. Chapman, 155. Wood, Cl.-Book, 373; Bot. & Fl. 116.

H. radiata. Smith, Icon. Pict. 1. 12. Poir. Suppl. 3. 71.

H. angulata. Tausch, l. c. 17. 494.

H. radiata. Walter, 251. Lam. Ill. 2. 493, t. **307**, f. **2**. Willd. Spec. 2. 634; Enum. 458. Ait. f. Hort. Kew. 3. 63. Poir. Suppl. 3. 71. Torrey, Fl. U. S. 443. Beck, Bot. 137. Torr. & Gray, Fl. 1. 592. Curtis, Bot. N. Car. 101. Chapman, 155. Wood, Cl.-Book, 373; Bot. & Fl. 116.

H. nivea. Michx. Fl. 1. 268. Persoon, 1. 486. Poir. Suppl. 3. 71. Pursh, 309. Nutt. Genera, 1. 284. Elliott, 1. 510. Watson, Dendr. Brit. t. **43**. Spreng. Syst. 2. 361. DC. Prodr. 4. 14. Don, Mill. 3. 232. Spach, Hist. Veg. 5. 25. Eat. & Wr. 276. Dietr. 2. 1525. Loud. Arb. 2. 995, f. **750**.

H. discolor. Raf. New Flora, 3. 79.

ITEA Virginica. Linn. Spec. 299. Marsh. Arbust. 65. L'Her. Stirp. 1. 138. Walter, 102. Ait. Hort. Kew. 1. 277. Lam. Dict. 3. 315; Ill. 2. 144, t. **147**, f. **1**.

Swartz, Obs. Bot. 93. Willd. Spec. 1. 1146; Enum. 261. Michx. Fl. 1. 157. Persoon, 1. 175. Gaertn. Fruct. 3, t. **209**. Pursh, 171. Nutt. Genera, 1. 144. Loisel. Nouv. Duham. 6, t. **9**. Roem. & Schult. Syst. 5. 408. Elliott, 1. 293. Sims, Bot. Mag. t. **2409**. Torrey, Fl. U. S. 248. Watson, Dendr. Brit. t. **12**. Spreng. Syst. 1. 794. DC. Prodr. 4. 6. Beck, Bot. 139. Don, Mill. 3. 196. Hook. Comp. Bot. Mag. 1. 46. Torr. & Gray, Fl. 1. 590. Eat. & Wr. 286. Loud. Arb. 2. 992, f. **745**. Agard. Theor. Syst. t. **12**, f. **7**. Curtis, Bot. N. Car. 100. Chapman, 155. Gray, Manual, 165. Baillon, Hist. Pl. 3. 355, f. **409**, **410**.

Diconangia heterophylla. Raf. Aut. Bot. 7.

JAMESIA Americana. Torr. & Gray, Fl. 1. 593. Gray, Pl. Fendl. 55; Am. Journ. Sci. 2. 33. 409; Proc. Acad. Philad. 1863, 62. Walp. Ann. 2. 615. Torrey, Pac. R. Rep. 4. 90. Porter, Hayd. Rep. 1870, 475; Fl. Col. 41. Watson, King's Rep. 5. 97. Baillon, Hist. Pl. 3. 349. Carrière, Rev. Hort. 1874, 389, f. **52**. Rothr. Pl. Wheeler, 38. Hook. f. Bot. Mag. t. **6142**.

LEPTARRHENA pyrolifolia. R. Brown, Parry's 1st Voy. 273. Hook. Fl. Bor.-Am. 1. 256, t. **89**. Seringe, DC. Prodr. 4. 48. Bongard, Veg. Sitch. 139. Don, Mill. 3. 226. Raf. Fl. Tellur. 2. 71. Torr. & Gray, Fl. 1. 563. Eat. & Wr. 297. Ledeb. Fl. Ross. 2. 225. Walp. Rep. 5. 827. Rothr. Fl. Alask. 447. Baillon, Hist. Pl. 3. 333.

Saxifraga pyrolifolia. D. Don, Saxifr. in Trans. Linn. Soc. 13. 389. Spreng. Syst. 2. 365.

Saxifraga amplexifolia. Sternb. Rev. Saxifr. Suppl. 2, t. **2**; Linnæa, 6. 556. Spreng. Syst. 2. 367.

L. amplexifolia. Seringe, DC. Prodr. 4. 48. Raf. Fl. Tellur. 2. 72.

L. micrantha. Fisch.; Raf. l. c.

LEPUROPETALON spathulatum. Elliott, 1. 370 (Spreng. Neue Entdeck. 2. 194). Spreng. Syst. 1. 940. DC. Prodr. 4. 53. Don, Mill. 3. 231. Torr. & Gray, Fl. 1. 590. Eat. & Wr. 297. Gray, Pl. Wright. 1. 77; Hall's Pl. Texas, 11. Planchon, Ann. Sci. Nat. 4. 2. 258. Torrey, Mex. Bound. 69. Chapman, 152. Wood, Cl.-Book, 373; Bot. & Fl. 115. Baillon, Hist. Pl. 3. 333.

Pyxidanthera spathulata. Muhl. Cat. 24.

Cryptopetalum pusillum. Hook. & Arn. in Bot. Misc. 3. 344.

L. pusillum. C. Gay, Fl. Chil. 3. 43.

MITELLA Breweri. Gray, Proc. Am. Acad. 6. 533; Bot. Calif. 1. 199.

M. caulescens. Nutt.; Torr. & Gray, Fl. 1. 586. Walp. Rep. 2. 371. Gray, Proc. Am. Acad. 8. 383; Bot. Calif. 1. 200. Torrey, Bot. Wilkes, 311.

M. diphylla. Linn. Spec. 406. Hill, Veg. Syst. 13, t. **32**, f. **1**. Gaertn. Fruct. 1. 208, t. **44**, f. **6**. Ait. Hort. Kew. 2. 83. Lam. Dict. 4. 195; Ill. 2. 395, t. **373**, f. **1**. Willd. Spec. 2. 659; Enum. 463. Michx. Fl. 1. 270. Persoon, 1. 491. Schkuhr, Handb. 1. 375, t. **120**. Pursh, 313. Ker, Bot. Reg. 2, t. **166**. Haworth, Enum. Saxifr. 57. Barton, Fl. N. Am. 3. 51, t. **89**. Bigel. Fl. Bost. 2 ed. 178. Torrey, Fl. U. S. 446; Fl. N. Y. 1. 257. Spreng. Syst. 2. 361. Seringe, DC. Prodr. 4. 49. Hook. Fl. Bor.-Am. 1. 240. Beck, Bot. 138. Don, Mill. 3. 227. Spach, Hist. Veg. 5. 62. Darling. Fl. Cestr. 271. Torr. & Gray, Fl. 1. 586. Eat. & Wr. 321. Dietr. 2. 1539. Chapman, 154. Gray, Manual, 170; Bot. Calif. 1. 200.

M. nuda. Linn. Spec. 406. See syn. in Ledeb. Fl. Ross. 2. 228. — Ait. f. Hort. Kew. 3. 73. Haworth, Enum. Saxifr. 58. Richard. Frankl. Journ. 10. Hook. Fl. Bor.-Am. 1. 240. Don, Mill. 3. 228. Torr. & Gray, Fl. 1. 586. Dietr. 2. 1538. Torrey, Fl. N. Y. 1. 257. Hook. f. Arct. Pl. 291. Pl. Bourgeau, 256. Gray, Manual, 170; Bot. Calif. 1. 200. Baillon, Hist. Pl. 3. 330, f. **369**.

M. reniformis. Lam. Ill. 2. 395, **t. 373, f. 2**; Dict. 4. 196. Pursh, 314. Spreng. Syst. 2. 361.

M. cordifolia. Lam. Ill. l. c. **f. 3**; Dict. 4. 196. Willd. Spec. 2. 660. Michx. Fl. 1. 270. Persoon, 1. 491. Pursh, 314. Haworth, l. c. 57. Torrey, Fl. U. S. 446. Spreng. Syst. 2. 361. Seringe, DC. Prodr. 4. 49. Beck, Bot. 139. Spach, Hist. Veg. 5. 63. Eat. & Wr. 321.

? *Tiarella unifolia.* Retz, Obs. Bot. Fasc. 3. 30.

Var. *β.* Torr. & Gray, Fl. 1. 586. Walp. Rep. 2. 371.

M. prostrata. Michx. Fl. 1. 270. Persoon, 1. 491. Poir. Suppl. 3. 710. Haworth, l. c. 57. Bigel. Fl. Bost. 2 ed. 179. Spreng. Syst. 2. 361. Seringe, DC. Prodr. 4. 49. Eat. & Wr. 321.

M. pentandra. Hook. Bot. Mag. **t. 2933**; Fl. Bor.-Am. 1. 241. Graham, Edinb. Phil. Journ. 1829, 346. Torr. & Gray, Fl. 1. 586. Dietr. 2. 1539. Newberry, Pac. R. Rep. 6. 74. Gray, Am. Journ. Sci. 2. 33. 409; Proc. Acad. Philad. 1863, 62; Bot. Calif. 1. 200. Watson, King's Rep. 5. 95. Porter, Hayd. Rep. 1871, 482; Fl. Col. 40. Coulter, Hayd. Rep. 1872, 766. Baillon, Hist. Pl. 3. 330, **f. 370.** Torrey, Bot. Wilkes, 312.

Drummondia mitelloides. DC. Prodr. 4. 50. Don, Mill. 3. 228, **f. 50.** Spach, Hist. Veg. 5. 64. Eat. & Wr. 230.

Pectiantia mitelloides. Raf. Fl. Tellur. 2. 72.

Mitellopsis Drummondia. Meissner, Pl. Vasc. Gen. 1. 100.

Mitellopsis pentandra. Walp. Rep. 2. 370.

M. trifida. Graham, Edinb. Phil. Journ. 1829, 185 (Litt.-Ber. zu Linnæa, 1830, 155). Hook. Fl. Bor.-Am. 1. 241, **t. 82**; Lond. Journ. Bot. 6. 232. Don, Mill. 3. 228. Torr. & Gray, Fl. 1. 587. Eat. & Wr. 321. Dietr. 2. 1538. Watson, King's Rep. 5. 95. Coulter, l. c. Gray, Proc. Am. Acad. 8. 383; Bot. Calif. 1. 200.

Ozomelis varians. Raf. Fl. Tellur. 2. 73.

Mitellopsis trifida. Meissner, l. c. Walp. Rep. 2. 370.

PARNASSIA asarifolia. Ventenat, Jard. Malm. **t. 39** (Schrad. Journ. Bot. 1807, 77; Koenig, Ann. Bot. 1. 390). Persoon, 1. 331. Pursh, 208. Poir. Suppl. 4. 302. Roem. & Schult. Syst. 6. 696. Elliott, 1. 372. DC. Prodr. 1. 320. Spreng. Syst. 1. 951. Don, Mill. 1. 348. Torr. & Gray, Fl. 1. 149. Eat. & Wr. 343. Dietr. 2. 1016. Chapman, 38. Gray, Manual, 167.

P. nudata. Raf. Autikon Bot. 41.

P. Caroliniana. Michx. Fl. 1. 184. Persoon, 1. 331. Ait. f. Hort. Kew. 2. 177. Sims, Bot. Mag. **t. 1459.** Pursh, 208. Poir. Suppl. 4. 302. Elliott, 1. 371. Roem. & Schult. Syst. 6. 696. Goldie, Edinb. Phil. Trans. 6. 325. DC. Prodr. 1. 320. Torrey, Fl. U. S. 326; Fl. N. Y. 1. 83, **t. 11.** Spreng. Syst. 1. 950. Bigel. Fl. Bost. 2 ed. 129. Hook. Fl. Bor.-Am. 1. 83. Don, Mill. 1. 348. Beck, Bot. 43. Maund, Bot. Gard. 12, **t. 550.** Torr. & Gray, Fl. 1. 149. Dietr. 2. 1016. Walp. Rep. 1. 231. Gray, Genera Ill. 1. 200, **t. 86**; Manual, 167; Am. Journ. Sci. 3. 2. 307; Am. Naturalist, 5. 649. Lesqx. Fl. Ark. 350. Chapman, 38.

P. palustris. Michx. Fl. 1. 184 ? Pursh, 208. Torrey, Fl. U. S. 326.

P. Americana. Muhl. Cat. 32. Eat. & Wr. 342.

P. ovata. Muhl. Cat. 32.

? *P. ovata*, var. (?) *Belvisii.* DC. Prodr. 1. 320. Don, Mill. 1. 348.

P. rotundifolia, grandiflora, glauca & repanda. Raf. Autikon Bot. 41 & 42.

Var. *β.* Hook. Journ. Bot. 1. 194. Torr. & Gray, Fl. 1. 149.

P. grandifolia. DC. Prodr. 1. 320. Don, Mill. 1. 348. Dietr. 2. 1016.

P. fimbriata. Koenig, Ann. Bot. 1. 391. DC. Prodr. 1. 320. Spreng. Syst. 1. 951. Hook. Fl. Bor.-Am. 1. 84; Bot. Misc. 1. 43, **t. 23.** Don, Mill. 1. 348. Torr. & Gray,

Fl. 1. 150. Eat. & Wr. 343. Dietr. 2. 1016. Torrey, Frem. Rep. 87. Pl. Bourgeau, 257. Gray, Proc. Acad. Philad. 1863, 58; Bot. Calif. 1. 202. Watson, King's Rep. 5. 97. Porter, Hayd. Rep. 1871, 483; Fl. Col. 41. Coulter, Hayd. Rep. 1872, 766. Rothr. Pl. Wheeler, 38.

P. Kotzebuei. Cham. & Schlecht. in Linnæa, 1. 549. Spreng. Syst. 1. 951. Hook. Fl. Bor.-Am. 1. 83, t. **28**; Lond. Journ. Bot. 6. 73. Don, Mill. 1. 348. Torr. & Gray, Fl. 1. 149. Hook. & Arn. Bot. Beechey, 122. Eat. & Wr. 343. Dietr. 2. 1016. Ledeb. Fl. Ross. 1. 264. Hornem. Fl. Dan. 13, t. **2286**. Walp. Rep. 1. 231. Seem. Bot. Herald, 25. Lange, Pl. Groenl. 131. Ascherson, Regensb. Flora, 43. 370. Regel, Fl. Ost-Sib. 1. 264. Hook. f. Arct. Pl. 201 & 328. Pl. Bourgeau, 257. Gray, Proc. Acad. Philad. 1863, 58. Rothr. Fl. Alask. 444.

P. palustris. Linn. Spec. 273. See syn. in Ledeb. Fl. Ross. 1. 262; Regel, Fl. Ost-Sib. 1. 259; Miquel, Ann. Mus. Lugd.-Bat. 3. 97; Pritzel, Index Icon. Bot. 801. — Schrank, Pfl. Lab. 13. Richard. Frankl. Journ. 7. Cham. & Schlecht. in Linnæa, 1. 549. Hook. Fl. Bor.-Am. 1. 82. Meyer, Fl. Lab. 88. Beck, Bot. 43. Hook. & Arn. Bot. Beechey, 122. Torr. & Gray, Fl. 1. 148. Eat. & Wr. 343. Seem. Bot. Herald, 25 & 51. Hook. f. Arct. Pl. 201. Pl. Bourgeau, 257. Rothr. Fl. Alask. 444. Matthew, Fl. Acad. 15. Gray, Manual, 167; Am. Journ. Sci. 3. 2. 307; Bot. Calif. 1. 202. Porter, Hayd. Rep. 1871, 482.

Var. **Californica.** Gray, Bot. Calif. 1. 202.

P. parviflora. DC. Prodr. 1. 320. Hook. Fl. Bor.-Am. 1. 82, t. **27**. Don, Mill. 1. 348. Torr. & Gray, Fl. 1. 149; Pac. R. Rep. 2. 126. Eat. & Wr. 343. Dietr. 2. 1016. Torrey, Frem. Rep. 87; Bot. Wilkes, 310. Gray, Proc. Acad. Philad. 1863, 58; Manual, 166. Watson, King's Rep. 5. 97 & 420. Porter, Hayd. Rep. 1871, 483; Fl. Col. 41. Coulter, Hayd. Rep. 1872, 766. Gillman, Am. Naturalist, 8. 305. Rothr. Pl. Wheeler, 38. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 325.

PHILADELPHUS CORONARIUS, Linn. Gray, Manual, 166.

P. Zeyheri & *verrucosus.* Schrader, DC. Prodr. 3. 205; Linnæa, 12. 390 & 392; fide Maximowicz, Rev. Hydrang. in Mém. Acad. Peters. 7. 10. 38, & Ind. Sem. Petrop. 1866, 4. Don, Mill. 2. 807. Loud. Arb. 2. 952, f. **675**.

P. Gordonianus. Lindl. Bot. Reg. 24, Misc. 21; 25, t. **32**. Torr. & Gray, Fl. 1. 595. Walp. Rep. 2. 151. Dietr. 3. 81. Cooper, Pac. R. Rep. 12. 30 & 62. Gray, Bot. Calif. 1. 202. Referred to *P. Lewisii* by Torrey, Bot. Wilkes, 312.

P. grandiflorus. Willd. Enum. 511. Pursh, 329. Poir. Suppl. 5. 135. Elliott, 1. 538. Spreng. Syst. 2. 493. Guimp. Otto & Hayne, t. **44**. Schrader, DC. Prodr. 3. 206; Linnæa, 12. 395. Sweet, Brit. Fl. Gard. 2 ser. t. **8**. Don, Mill. 2. 808. Spach, Hist. Veg. 5. 16. Torr. & Gray, Fl. 1. 595. Eat. & Wr. 354. Dietr. 3. 81. Loud. Arb. 2. 954, f. **676**. Curtis, Bot. N. Car. 101. Chapman, 156. Schnizl. Icon. t. **265**, f. **14–21** (fruit). Wood, Cl.-Book, 374. Maximowicz, ll. cc. 43 & 5.

P. inodorus. Michx. Fl. 1. 283. Poir. Dict. 7. 119. Salisb. Parad. Lond. t. 123.

P. speciosus. Schrader, DC. Prodr. 3. 206; Linnæa, 12. 397. Don, Mill. 2. 807. Lindl. Bot. Reg. 23, t. **2003**.

P. inodorus, var. *grandiflorus.* Gray, Manual, 166. Wood, Bot. & Fl. 116.

Var. **laxus.** Torr. & Gray, Fl. 1. 595. Dietr. 3. 81.

P. laxus. Schrader, DC. Prodr. 3. 206; Linnæa, 12. 398. Don, Mill. 2. 807. Lindl. Bot. Reg. 25, t. **39**. Loud. Arb. 2. 954, f. **677**.

Var. **floribundus.** Torr. & Gray, Fl. 1. 595. Dietr. 3. 81. Loud. Arb. 2. 953, f. **676**.

P. inodorus. Barton, Elem. Bot. Appx. 28, t. **18**.

P. grandiflorus. Ker, Bot. Reg. 7, t. **570**.

P. floribundus & *latifolius.* Schrader, DC. Prodr. 3. 205 & 206; Linnæa, 12. 391 & 394. Don, Mill. 2. 807. Spach, Hist. Veg. 5. 15 & 16.

P. coronarius, vars. *floribundus* & *latifolius.* Maximowicz, ll. cc. 42 & 4.

P. hirsutus. Nutt. Genera, 1. 301. Spreng. Syst. 2. 493. DC. Prodr. 3. 206. Sweet, Brit. Fl. Gard. 2 ser. t. **119**. Don, Mill. 2. 808. Spach, Hist. Veg. 5. 17. Lindl. Bot. Reg. 24, t. **14**. Torr. & Gray, Fl. 1. 595. Eat. & Wr. 354. Dietr. 3. 81. Loud. Arb. 2. 954, f. **678**. Curtis, Bot. N. Car. 101. Chapman, 156. Hook. Bot. Mag. t. **5334**.

P. trinervius. Schrader, Linnæa, 12. 390.

P. inodorus, var. *hirsutus.* Wood, Bot. & Fl. 116.

P. inodorus. Linn. Spec. 470. Marsh. Arbust. 99. Walter, 146. Willd. Spec. 2. 948. Nouv. Duham. 1. 71. Persoon, 2. 24. Ait. f. Hort. Kew. 3. 180. Sims, Bot. Mag. t. **1478**. Pursh, 329. Elliott, 1. 538. Spreng. Syst. 2. 493. DC. Prodr. 3. 206. Don, Mill. 2. 808. Spach, Hist. Veg. 5. 18. Schrader, Linnæa, 12. 401. Torr. & Gray, Fl. 1. 594. Eat. & Wr. 354. Dietr. 3. 81. Loud. Arb. 2. 952, f. **674**. Leavenworth, Am. Journ. Sci. 1. 49. 130. Chapman, 156. Gray, Manual, 166, excl. var.

Syringa inodora. Moench, Meth. 678.

P. Lewisii. Pursh, 329. Poir. Suppl. 5. 135. Spreng. Syst. 2. 493. DC. Prodr. 3. 206. Hook. Fl. Bor.-Am. 1. 220; Lond. Journ. Bot. 6. 231. Don, Mill. 2. 808. Spach, Hist. Veg. 5. 18. Torr. & Gray, Fl. 1. 595. Eat. & Wr. 354. Dietr. 3. 81. Cooper, Pac. R. Rep. 12. 62. Gray, Proc. Am. Acad. 8. 383; Bot. Calif. 1. 202. Torrey, Bot. Wilkes, 312.

P. grandiflorus, var. ? Maximowicz, ll. cc. 43 & 5.

Var. Californicus. Gray, Bot. Calif. 1. 202.

P. Californicus. Benth. Pl. Hartw. 309. Walp. Ann. 2. 614 & 7. 903. Torrey, Pac. R. Rep. 4. 90. Lemaire, Ill. Hort. 5, Misc. 65. Boland. Cat. 11.

P. Lewisii, var. *parvifolius.* Torrey, Pac. R. Rep. 4. 90.

P. microphyllus. Gray, Pl. Fendl. 54. Walp. Ann. 2. 614. Porter, Fl. Col. 41.

P. serpyllifolius. Gray, Pl. Wright. 1. 77 & 2. 64. Walp. Ann. 4. 821. Torrey, Mex. Bound. 69. Referred to *P. Mexicanus*, Schlecht., by Seemann in Bot. Herald, 294.

RIBES aureum. Pursh, 164. Ker, Bot. Reg. 2, t. **125**. Poir. Suppl. 5. 696. Bradb. Cat. 336. Nutt. Genera, 1. 140; Journ. Acad. Philad. 7. 26. Roem. & Schult. Syst. 5. 497. James, Cat. 177; Long's Exped. 2. 185. Spreng. Syst. 1. 811. Guimp. Otto & Hayne, t. **2**. Wendland in Bartl. & Wendl. Beitr. Bot. 2. 17. Torrey, Ann. Lyc. N. Y. 2. 203; Nicol. Rep. 150; Sitgr. Rep. 160; Marcy's Rep. 286; Bot. Wilkes, 306. Lindl. Trans. Hort. Soc. 7. 241 (Litt.-Ber. zu Linnæa, 1830, 109). Berlandier, Mém. Soc. Genève, 3², t. **2**, f. **23**; DC. Prodr. 3. 483. Maund, Bot. Gard. 4, t. **189**. Hook. Fl. Bor.-Am. 1. 235; Lond. Journ. Bot. 6. 229. Don, Mill. 3. 191. Torr. & Gray, Fl. 1. 552; Pac. R. Rep. 2. 165. Dietr. 1. 852. Eat. & Wr. 395. Walp. Rep. 2. 361. Loud. Arb. 2. 980, f. **742**, **743**. Gray, Pl. Fendl. 54; Pac. R. Rep. 12. 43; Ives's Rep. 15; Proc. Acad. Philad. 1863, 61; Bot. Calif. 1. 207. Engelm. Pl. Upp. Miss. 193. Wood, Cl.-Book, 361; Bot. & Fl. 117. Pl. Bourgeau, 257. Watson, King's Rep. 5. 100; Pl. Wheeler, 9. Porter, Hayd. Rep. 1871, 481; Fl. Col. 42. Rothr. Pl. Wheeler, 38.

R. longiflorum. Nutt. in Fraser's Cat. 1813.

R. odoratum. Wendland, l. c. 2. 15.

R. ebracteatum. Berlandier, Mém. Soc. Genèv. 3². 60, t. **2**, f. **24**.

R. flavum. Colla, Hort. Ripul. Appx. 3. 2, t. 1, B, in Mem. Accad. Torin. 33 (Litt.-Ber. zu Linnæa, 1829, 57). Berland. in DC. Prodr. 3. 483. Don, Mill. 3. 191. Loud. Arb. 2. 990.

R. fragrans. Lodd. Bot. Cab. t. 1533.

Chrysobotrya revoluta & intermedia. Spach, Ann. Sci. Nat. 2. 4. 18, t. 1, A, B; Hist. Veg. 6. 149, t. 47, f. 2. Nees, Pl. Neuwied, 10.

R. Oregoni. Herincq, Hortic. Franc. 1872, t. 8 (Gard. Chronicle, 1874, 179).

Var. **tenuiflorum.** Torrey, Pac. R. Rep. 4. 88; Mex. Bound. 68.

R. tenuiflorum. Lindl. Trans. Hort. Soc. 7. 242; Bot. Reg. 15, t. 1274 (Litt.-Ber. zu Linnæa, 1830, 104). Hook. Fl. Bor.-Am. 1. 235. Don, Mill. 3. 191. Hook. & Arn. Bot. Beechey, 345. Torr. & Gray, Fl. 1. 552. Eat. & Wr. 395. Walp. Rep. 2. 361. Loud. Arb. 2. 990, f. 744. Gray, Pl. Wright. 2. 63.

R. aureum. Colla, l. c.

Chrysobotrya Lindleyana. Spach, Ann. Sci. Nat. 2. 4. 20, t. 1, C; Hist. Veg. 6. 151.

R. bracteosum. Dougl.; Hook. Fl. Bor.-Am. 1. 233. Bongard, Veg. Sitch. 138 (Presl, Repert. Bot. 1. 314). Don, Mill. 3. 186. Torr. & Gray, Fl. 1. 550. Dietr. 1. 852. Eat. & Wr. 395. Walp. Rep. 2. 359. Ledeb. Fl. Ross. 2. 201. Cooper, Pac. R. Rep. 12. 31 & 61. Rothr. Fl. Alask. 446. Gray, Proc. Am. Acad. 8. 383; Bot. Calif. 1. 206. Maximowicz, Bull. Acad. Petersb. 19. 253 (Mél. Biolog. 9. 222).

R. cereum. Dougl. in Trans. Hort. Soc. 7. 312. Lindl. Bot. Reg. 15, t. 1263. Hook. Fl. Bor.-Am. 1. 234; Bot. Mag. t. 3008; Lond. Journ. Bot. 6. 228. Don, Mill. 3. 190. Torr. & Gray, Fl. 1. 551. Dietr. 1. 852. Eat. & Wr. 395. Walp. Rep. 2. 359. Loud. Arb. 2. 986, f. 737. Torrey, Frem. Rep. 90; Emory's Rep. 408; Sitgr. Rep. 160; Bot. Wilkes, 305. Gray, Pl. Fendl. 53; Ives's Rep. 15; Am. Journ. Sci. 2. 33. 408; Proc. Acad. Philad. 1863, 61; Bot. Calif. 1. 207. Cooper, Pac. R. Rep. 12. 30. Watson, King's Rep. 5. 99; Pl. Wheeler, 8. Porter, Hayd. Rep. 1871, 482; Fl. Col. 42. Rothr. Pl. Wheeler, 38.

R. resinosum. James, Cat. 177.

R. inebrians. Lindl. Bot. Reg. 17, t. 1471. Don, Mill. 3. 190. Dietr. 1. 852. Loud. Arb. 2. 34, f. 736.

R. reniforme. Nuttall, Journ. Acad. Philad. 7. 25.

Cerophyllum Douglasii. Spach, Hist. Veg. 6. 153.

R. balsamifera. Kellogg, Proc. Calif. Acad. 2. 94, f. 25.

Var. **pedicellare.** Gray, Bot. Calif. 1. 207.

R. Cynosbati. Linn. Spec. 202. Jacquin, Hort. Vindob. 2, t. 123. Marsh. Arbust. 133. Lam. Dict. 3. 51. Ait. Hort. Kew. 1. 281. Moench, Meth. 684. Willd. Spec. 1. 1159. Michx. Fl. 1. 110. Nouv. Duham. 3. 232. Persoon, 1. 252. Pursh, 166. Roem. & Schult. Syst. 5. 506. Torrey, Fl. U. S. 270; Fl. N. Y. 1. 246. Bigel. Fl. Bost. 2 ed. 91. Spreng. Syst. 1. 812. Guimp. Otto & Hayne, t. 135. Berlandier, Mém. Soc. Genèv. 3², t. 1, f. 3; DC. Prodr. 3. 479. Hook. Fl. Bor.-Am. 1. 230. Don, Mill. 3. 178. Beck, Bot. 137. Torr. & Gray, Fl. 1. 545. Dietr. 1. 853. Eat. & Wr. 395. Nees, Pl. Neuwied, 10. Loud. Arb. 2. 970, f. 719. Emerson, Trees of Mass. 420. Richard. Arct. Exped. 428. Parry, Pl. Minn. 612. Curtis, Bot. N. Car. 84. Chapman, 145. Gray, Manual, 104; Am. Naturalist, 10. 272 (Gard. Chronicle, 9. 485).

R. gracile. Torrey, Fl. U. S. 269.

Grossularia Cynosbati. Spach, Hist. Veg. 6. 178.

R. oxyacanthoides, var. γ. Torr. & Gray, Fl. 1. 546.

R. oxyacanthoides. Pl. Bourgeau, 256.

R. divaricatum. Dougl. in Trans. Hort. Soc. 7. 515. Lindl. Bot. Reg. 16, under t. 1349, & **t. 1359.** Hook. Fl. Bor.-Am. 1. 231; Lond. Journ. Bot. 6. 229. Don, Mill. 3. 178. Torr. & Gray, Fl. 1. 547. Dietr. 1. 852. Eat. & Wr. 396. Walp. Rep. 2. 357. Loud. Arb. 2. 970, **f. 720.** Benth. Pl. Hartw. 311. Gray, Pl. Fendl. 3; Proc. Am. Acad. 8. 383; Am. Naturalist, 10. 273 (Gard. Chronicle, 9. 485); Bot. Calif. 1. 205. Richard. Arct. Exped. 428. Torrey, Pac. R. Rep. 4. 88; Mex. Bound. 68; Bot. Wilkes, 304. Newberry, Pac. R. Rep. 6. 74. Cooper, same, 12. 30 & **61.** Bolander, Proc. Calif. Acad. 3. 80; Cat. 11.

Grossularia divaricata. Spach, Hist. Veg. 6. 177.

R. triflorum. Hook. & Arn. Bot. Beechey, 346.

R. villosum. Nutt.; Torr. & Gray, Fl. 1. 547. Walp. Rep. 2. 357.

Var. **irriguum.** Gray, Am. Naturalist, 10. 273; Bot. Calif. 1. 206.

R. irriguum. Dougl. in Trans. Hort. Soc. 7. 516. Hook. Fl. Bor.-Am. 1. 231. Lindl. Bot. Reg. 16, under t. 1349. Don, Mill. 3. 178. Torr. & Gray, Fl. 1. 547. Eat. & Wr. 396. Walp. Rep. 2. 358. Loud. Arb. 2. 971, **f. 721.** Torrey, Frem. Rep. 90; Sitgr. Rep. 160. Watson, King's Rep. 5. 98. Porter, Fl. Col. 42.

Grossularia irrigua. Spach, Hist. Veg. 6. 179.

R. triflorum. Hook. in Lond. Journ. Bot. 6. 228.

R. floridum. L'Her. Stirp. 1. 4 (Ehrh. Beitr. 6. 119). Ait. Hort. Kew. 1. 280. Willd. Spec. 1. 1156; Enum. 262. Pursh, 164. Roem. & Schult. Syst. 5. 499. Richard. Frankl. Journ. 6; Arct. Exped. 429. Bigel. Fl. Bost. 2 ed. 90. Torrey, Fl. U. S. 267; Fl. N. Y. 1. 248; Nicol. Rep. 150. Guimp. Otto & Hayne, **t. 1.** Spreng. Syst. 1. 811. Berland. Mém. Soc. Genèv. 3^2, **t. 2, f. 22**; DC. Prodr. 3. 483. Hook. Fl. Bor.-Am. 1. 233. Don, Mill. 3. 190. Beck, Bot. 130. Darling. Fl. Cestr. 160. Torr. & Gray, Fl. 1. 549. Dietr. 1. 852. Eat. & Wr. 394. Nees, Pl. Neuwied, 10. Loud. Arb. 2. 985, **f. 735.** Emerson, Trees of Mass. 422. Parry, Pl. Minn. 612. Engelm. Pl. Upp. Miss. 193. Tuckerman, Josselyn's Rarities, 82. Gray, Pac. R. Rep. 12. 43; Manual, 165. Lesqx. Fl. Ark. 361. Pl. Bourgeau, 256. Porter, Fl. Col. 42.

R. nigrum, var. β. Linn. Spec. 201.

R. nigrum, var. *Pennsylvanicum.* Marshall, Arbust. 132.

R. Pennsylvanicum. Lam. Dict. 3. 49. Persoon, 1. 251. Nouv. Duham. 3. 229.

R. campanulatum. Moench, Meth. 683.

R. recurvatum. Michx. Fl. 1. 109. Persoon, 1. 251. Pursh, 164. Poir. Suppl. 696. Roem. & Schult. Syst. 5. 498. Berland. l. c. 3. 482. Dietr. 1. 851.

Coreosma florida. Spach, Ann. Sci. Nat. 2. 4. 22; Hist. Veg. 6. 157.

R. gracile. Michx. Fl. 1. 111. Persoon, 1. 252. Poir. Suppl. 2. 857. Spreng. Syst. 1. 812. Torr. & Gray, Fl. 1. 546. Eat. & Wr. 395. Chapman, 145. Wood, Class-Book, 362. Gray, Am. Naturalist, 10. 272 (Gard. Chron. 9. 485).

R. niveum. Lindl. Bot. Reg. 20, **t. 1692** (Litt.-Ber. zu Linnæa, 1835, 56). Torr. & Gray, Fl. 1. 548. Walp. Rep. 2. 358. Loud. Arb. 2. 969, **f. 718.** Cooper, Pac. R. Rep. 12. 30 & 61.

? *R. triflorum.* Hook. Fl. Bor.-Am. 1. 230.

Grossularia nivea. Spach, Hist. Veg. 6. 179.

R. Missouriense. Nutt.; Torr. & Gray, Fl. 1. 548. Walp. Rep. 2. 358. Torrey, Nicol. Rep. 150.

R. rotundifolium, var. Engelm. Pl. Upp. Miss. 193.

R. Hudsonianum. Richard. Frankl. Journ. 2 ed. 6; Arct. Exped. 429. Hook. Fl. Bor.-Am. 1. 233; Lond. Journ. Bot. 6. 228. Don, Mill. 3. 190. Torr. & Gray, Fl. 1. 549. Eat. & Wr. 395. Walp. Rep. 2. 359. Loud. Arb. 2. 987. Hook. f. Arct. Pl. 291. Rothr. Fl. Alask. 446. Gray, Bot. Calif. 1. 206.

R. nigrum. Richard. Frankl. Journ. 1 ed. 6.

R. bracteosum. Watson, King's Rep 5. 99. Porter, Hayd. Rep. 1871, 482. Coulter, same, 1872, 766.

Var. β. Hook. Fl. Bor.-Am. 233. Torr. & Gray, l. c.

R. petiolare. Dougl. in Trans. Hort. Soc. 7. 514. Lindl. Bot. Reg. 16, under t. 1349.

R. lacustre. Poir. Suppl. 2. 856. Pursh, 165. Nutt. Genera, 1. 140. Roem. & Schult. Syst. 5. 506. Bigel. Fl. Bost. 2 ed. 91. Torrey, Fl. U. S. 270; Fl. N. Y. 1. 247; Nicol. Rep. 150; Frem. Rep. 90; Bot. Wilkes, 305. Lodd. Bot. Cab. **t. 884.** Spreng. Syst. 1. 812. Guimp. Otto & Hayne, **t. 136.** Berlandier, DC. Prodr. 3. 478. Hook. Fl. Bor.-Am. 1. 232; Lond. Journ. Bot. 6. 228. Don, Mill. 3. 178. Beck, Bot. 136. Spach, Hist. Veg. 6. 164. Torr. & Gray, Fl. 1. 548. Dietr. 1. 853. Eat. & Wr. 395. Loud. Arb. 2. 976, **f. 724.** Emerson, Trees of Mass. 421. Richard. Arct. Exped. 428. Seem. Bot. Herald, 52. Newberry, Pac. R. Rep. 6. 74. Cooper, same, 12. 31 & 61. Hook. f. Arct. Pl. 291. Pl. Bourgeau, 256. Rothr. Fl. Alask. 446. Gray, Manual, 165; Am. Naturalist, 10. 270 (Gard. Chronicle, 9. 484). Watson, King's Rep. 5. 98. Porter, Hayd. Rep. 1871, 482; Fl. Col. 42. Coulter, Hayd. Rep. 1872, 766. Maxim. in Bull. Acad. Petersb. 19. 256 (Mélang. Biolog. 9. 226).

R. oxyacanthoides. Marsh. Arbust. 132 ? Michx. Fl. 1. 111. Persoon, 1. 252.

R. oxyacanthoides, var. *lacustre.* Persoon, 1. 252.

R. echinatum. Dougl.; Lindl. Bot. Reg. 16, under t. 1349.

Var. **parvulum.** Gray, Bot. Calif. 1. 206.

R. palustre, var. Gray, Am. Journ. Sci. 2. 33. 409. Watson, King's Rep. 5. 99. Coulter, Hayd. Rep. 1872, 766. Rothr. Pl. Wheeler, 38.

R. setosum. Gray, Proc. Am. Acad. 8. 383.

Var. **molle.** Gray, Bot. Calif. 1. 206.

R. laxiflorum. Pursh, 731. See syn. in Ledeb. Fl. Ross. 2. 200 (under *R. affine*); Maximowicz, l. c. 257 (227). — Poir. Suppl. 5. 696. Roem. & Schult. Syst. 5. 499. Spreng. Syst. 1. 810. Berlandier, DC. Prodr. 3. 482. Torr. & Gray, Fl. 1. 550. Dietr. 1. 852. Eat. & Wr. 395. Cooper, Pac. R. Rep. 12. 31 & 61. Rothr. Fl. Alask. 446. Gray, Bot. Calif. 1. 206.

R. Americanum. Pall. Fl. Ross. 234.

R. palustre, var. β. Hook. Fl. Bor.-Am. 1. 232.

R. affine. Dougl.; Bongard, Veg. Sitch. 138 (Presl, Repert. Bot. 1. 315). Dietr. 1. 852. Ledeb. Fl. Ross. 2. 200.

R. leptanthum. Gray, Pl. Fendl. 53; Pl. Wright. 2. 63; Proc. Acad. Philad. 1863, 61; Am. Naturalist, 10. 271 (Gard. Chronicle, 9. 484); Bot. Calif. 1. 205. Walp. Ann. 2. 687. Torrey, Pac. R. Rep. 4. 88; Mex. Bound. 68. Watson, King's Rep. 5. 98, in part; Pl. Wheeler, 8. Porter, Fl. Col. 42. Rothr. Pl. Wheeler, 38.

Var. **brachyanthum.** Gray, Bot. Calif. 1. 205.

R. leptanthum. Watson, King's Rep., mostly.

R. Lobbii. Gray, Am. Nat. 10. 274 (Gard. Chronicle, 9. 485); Bot. Calif. 1. 205.

R. subvestitum. Hook. Bot. Mag. **t. 4931,** not Hook. & Arn.

R. Menziesii. Pursh, 732. Poir. Suppl. 5. 696. Roem. & Schult. Syst. 5. 507. Spreng. Syst. 1. 812. Berlandier, DC. Prodr. 3. 478. Hook. Fl. Bor.-Am. 1. 229. Don, Mill. 3. 185. Lindl. Bot. Reg. 34, Misc. 25, & 33, **t. 56.** Hook. & Arn. Bot. Beechey, 141 & 345. Torr. & Gray, Fl. 1. 545. Dietr. 1. 853. Eat. & Wr. 396. Benth. Bot. Sulph. 17. Newberry, Pac. R. Rep. 6. 74. Torrey, Mex. Bound. 68, **t. 23**; Bot. Wilkes, 304. Boland. Cat. 11. Gray, Bot. Calif. 1. 204.

R. ferox. Smith, Rees Cyc. Berlandier, DC. Prodr. 3. 478. Dietr. 1. 853.

R. Californicum. Hook. & Arn. Bot. Beechey, 346. Torr. & Gray, Fl. 1. 548. Walp. Rep. 2. 358. Gray, Pac. R. Rep. 4. 88. Torrey, same, 7. 11; Mex. Bound. 68; Bot. Wilkes, 304. Anderson, Cat. Pl. Nev. 120.

R. occidentale. Hook. & Arn. l. c. Torr. & Gray, l. c. Walp. Rep. 2. 358. Benth. Pl. Hartw. 311.

R. subvestitum. Hook. & Arn. l. c. Torr. & Gray, Fl. 1. 545. Walp. Rep. 2. 357. Bolander, Proc. Calif. Acad. 1. 54 & 67; Cat. 11.

R. oxyacanthoides. Linn. Spec. 201. Lam. Dict. 3. 51. Ait. Hort. Kew. 1. 281. Willd. Spec. 1. 1159. Nouv. Duham. 3. 232. Pursh, 165. Roem. & Schult. Syst. 5. 506. Torrey, Fl. U. S. 270; Pac. R. Rep. 4. 88. Spreng. Syst. 1. 812. Berland. Mém. Soc. Genèv. 3^2, t. 1, f. 1; DC. Prodr. 3. 478. Don, Mill. 3. 177. Beck, Bot. 130. Torr. & Gray, Fl. 1. 546, excl. var. Eat. & Wr. 395. Walp. Rep. 2. 357. Loud. Arb. 2. 968, t. 715. Hook. in Lond. Journ. Bot. 6. 228. Porter, Hayd. Rep. 1871, 482. Gray, Am. Naturalist, 10. 273 (Gard. Chronicle, 9. 485); Bot. Calif. 1. 206.

R. hirtellum. Michx. Fl. 1. 111. Persoon, 1. 252. Poir. Suppl. 2. 857. Pursh, 163. Roem. & Schult. Syst. 5. 501. Spreng. Syst. 1. 812. Berlandier, DC. Prodr. 3. 479. Hook. Fl. Bor.-Am. 1. 231. Don, Mill. 3. 178. Beck, Bot. 136. Torr. & Gray, Fl. 1. 546. Dietr. 1. 853. Eat. & Wr. 395. Loud. Arb. 2. 971. Emerson, Trees of Mass. 420. Richard. Arct. Exped. 428. Engelm. Pl. Upp. Miss. 193. Tuckerman, Josselyn's Rarities, 77. Gray, Pac. R. Rep. 12. 43; Am. Journ. Sci. 2. 33. 409; Proc. Acad. Philad. 1863, 61; Manual, 164. Pl. Bourgeau, 256. Watson, King's Rep. 5. 97. Porter, Hayd. Rep. 1871, 482; Fl. Col. 42. Torrey, Bot. Wilkes, 305. Rothr. Pl. Wheeler, 38.

? *R. triflorum.* Bigel. Fl. Bost. 2 ed. 90. Torrey, Emory's Rep. 408.

R. saxosum. Hook. Fl. Bor.-Am. 1. 231. Don, Mill. 3. 178. Eat. & Wr. 396. Richard. Arct. Exped. 428.

Grossularia oxyacanthoides & hirtella. Spach, Hist. Veg. 6. 175 & 180.

R. irriguum. Gray, Pl. Fendl. 53.

? *R. rotundifolium.* Engelm. Pl. Upp. Miss. 193. Gray, Pac. R. Rep. 12. 43.

R. prostratum. L'Her. Stirp. 1. 3, t. 2 (Ehrh. Beitr. 6. 119). Lam. Dict. 3. 50. Persoon, 1. 251. Nouv. Duham. 3. 229. Pursh, 163. Roem. & Schult. Syst. 5. 495. Torrey, Fl. U. S. 1. 268; Fl. N. Y. 1. 248. Spreng. Syst. 1. 810. Berlandier, Mém. Soc. Genèv. 3^2, t. 2, f. 12; DC. Prodr. 3. 482. Hook. Fl. Bor.-Am. 1. 232, excl. var. Don, Mill. 3. 186. Beck, Bot. 136. Schlecht. Fl. Lab. in Linnæa, 10. 96. Spach, Hist. Veg. 6. 166. Torr. & Gray, Fl. 1. 549. Dietr. 1. 851. Eat. & Wr. 395. Loud. Arb. 2. 981, f. 731. Emerson, Trees of Mass. 422. Richard. Arct. Exped. 429. Curtis, Bot. N. Car. 85. Chapman, 145. Gray, Am. Journ. Sci. 2. 33. 408; Manual, 165; Bot. Calif. 1. 206. Watson, King's Rep. 5. 99. Porter, Hayd. Rep. 1871, 482; Fl. Col. 42.

R. glandulosum. Ait. Hort. Kew. 1. 279. Schmidt, Arb. 2, t. 95. Willd. Spec. 1. 1154. Richard. Frankl. Journ. 1 ed. 6. Eat. & Wr. 394.

R. rigens. Michx. Fl. 1. 110. Persoon, 1. 251. Poir. Suppl. 2. 854. Pursh, 163. Roem. & Schult. Syst. 5. 494. Bigel. Fl. Bost. 2 ed. 90. Torrey, Fl. U. S. 268. Spreng. Syst. 1. 810. Berlandier, DC. Prodr. 3. 482. Don, Mill. 3. 187. Beck, Bot. 135. Dietr. 1. 851. Eat. & Wr. 394. Loud. Arb. 2. 982.

R. trifidum. Michx. Fl. 1. 110. Persoon, 1. 251. Poir. Suppl. 2. 853. Pursh, 163. Roem. & Schult. Syst. 5. 494. Torrey, Fl. U. S. 268. Spreng. Syst. 1. 811. Berlandier, DC. Prodr. 3. 481. Hook. Fl. Bor.-Am. 1. 232. Don, Mill. 3. 186. Beck, Bot. 135. Dietr. 1. 851. Eat. & Wr. 394. Loud. Arb. 2. 981.

R. laxiflorum. Richard. Frankl. Journ. 1 ed. 7.

? *R. alpinum.* Hook. f. Arct. Pl. 291, as to hab. Labrador.

R. Hudsonianum. Pl. Bourgeau, 256.

R. resinosum. Pursh, 163. Sims, Bot. Mag. t. **1583.** Poir. Suppl. 5. 695. Roem. & Schult. Syst. 5. 490. Spreng. Syst. 1. 810. Berlandier, l. c. 3², t. **2,** f. **10**; DC. Prodr. 3. 480. Don, Mill. 3. 186. Torr. & Gray, Fl. 1. 550. Dietr. 1. 850. Eat. & Wr. 396. Loud. Arb. 2. 981, f. **732.** Curtis, Bot. N. Car. 85. Chapman, 145. Wood, Cl.-Book, 361; Bot. & Fl. 117.—Probably not American; referred to *R. villosum*, Roxb., by Braun, Ind. Sem. h. Berol. 1855, Appx. 16, and to *R. orientale*, Desf., by Koch, Dendrol. 1. 656, and Maximowicz, Bull. Acad. Peters. 19. 267 (Mélang. Biolog. 9. 242).

R. rotundifolium. Michx. Fl. 1. 110. Persoon, 1. 252. Poir. Suppl. 2. 857. Pursh, 165. Elliott, 1. 295. Spreng. Syst. 1. 812. Berlandier, DC. Prodr. 3. 478. Don, Mill. 3. 178. Torr. & Gray, Fl. 1. 547. Dietr. 1. 853. Eat. & Wr. 396. Torrey, Fl. N. Y. 1. 247. Emerson, Trees of Mass. 421. Richard. Arct. Exped. 428. Engelm. Pl. Upp. Miss. 193. Curtis, Bot. N. Car. 85. Chapman, 145. Gray, Manual, 164; Am. Naturalist, 10. 272 (Gard. Chronicle, 9. 485).

R. triflorum. Willd. Hort. Berol. t. **61** (Schrad. Journ. Bot. 1807, 126); Enum. 263. Poir. Suppl. 2. 857. Pursh, 165. Roem. & Schult. Syst. 5. 501. Torrey, Fl. U. S. 269. Spreng. Syst. 1. 812. Lodd. Bot. Cab. t. **1094.** Berlandier, l. c. 3², t. **1,** f. **4**; DC. Prodr. 3. 479. Guimp. Otto & Hayne, t. **3.** Don, Mill. 3. 177. Beck, Bot. 136. Eat. & Wr. 395. Loud. Arb. 2. 969, f. **717.**

R. stamineum. Hornemann, Hort. Hafn. 337.

R. gracile. Pursh, 165. Roem. & Schult. Syst. 5. 501. Elliott, 1. 296. Berlandier, DC. Prodr. 3. 479. Don, Mill. 3. 178. Beck, Bot. 136. Dietr. 1. 853. Loud. Arb. 2. 971. Curtis, Bot. N. Car. 85.

Grossularia triflora. Spach, Hist. Veg. 6. 176.

R. rubrum. Linn. Spec. 200. See syn. in Ledeb. Fl. Ross. 2. 199; Maximowicz, Bull. Acad. Petersb. 19. 261 (Mélang. Biolog. 9. 233).—Richard. Frankl. Journ. 2 ed. 6; Arct. Exped. 428. Hook. Fl. Bor.-Am. 1. 232. Torr. & Gray, Fl. 1. 550. Eat. & Wr. 396. Seem. Bot. Herald, 30. Tuckerman, Josselyn's Rarities, 82. Hook. f. Arct. Pl. 291. Pl. Bourgeau, 256. Rothr. Fl. Alask. 446. Gray, Manual, 165. Matthew, Fl. Acad. 15.

R. albinervium. Michx. Fl. 1. 110. Persoon, 1. 251. Poir. Suppl. 2. 855. Pursh, 163. Roem. & Schult. Syst. 5. 497. Torrey, Fl. U. S. 267; Bot. Wilkes, 305. Berlandier, DC. Prodr. 3. 482. Don, Mill. 3. 187. Beck, Bot. 135. Dietr. 1. 851. Eat. & Wr. 394. Loud. Arb. 2. 982.

Var. **subglandulosum.** Maxim. l. c. 261, referring to it all N. American forms.

R. sanguineum. Pursh, 164. Poir. Suppl. 5. 695. Roem. & Schult. Syst. 5. 497. Spreng. Syst. 1. 811. Berlandier, DC. Prodr. 3. 482. Dougl. in Trans. Hort. Soc. 7. 509, t. **13.** Lodd. Bot. Cab. t. **1487.** Hook. Fl. Bor.-Am. 1. 234; Bot. Mag. t. **2335** (Ann. Sci. Nat. 2. 5. 291). Lindl. Bot. Reg. 16, t. **1349.** Sweet, Brit. Fl. Gard. 2 ser., t. **109.** Maund, Bot. Gard. 8, t. **377.** Don, Mill. 3. 191. Paxton, Mag. Bot. 1, t. **31.** Torr. & Gray, Fl. 1. 551. Dietr. 1. 852. Eat. & Wr. 395. Loud. Arb. 2. 988, f. **739–741.** Richard. Arct. Exped. 429. Newberry, Pac. R. Rep. 6. 74. Cooper, same, 12. 30 & 61. Torrey, Mex. Bound. 68; Bot. Wilkes, 306. Wood, Cl.-Book, 361; Bot. & Fl. 117. Anderson, Cat. Pl. Nevada, 120. Watson, King's Rep. 5. 100; Proc. Am. Acad. 11. 114. Boland. Cat. 11. Gray, Proc. Am. Acad. 8. 383; Bot. Calif. 1. 207.

Calobotrya sanguinea. Spach, Ann. Sci. Nat. 2. 4. 21.

Coreosma sanguinea. Spach, Hist. Veg. 6. 155, t. **47,** f. **1.**

Var. **glutinosum.** Gray, Bot. Calif. 1. 207.

R. glutinosum. Benth. in Trans. Hort. Soc. 2. 1. 476. Maund, Bot. Gard. 13, t. **597.** Hook. & Arn. Bot. Beechey, 345. Torr. & Gray, Fl. 1. 551. Walp. Rep. 2. 360. Torrey, Pac. R. Rep. 4. 88. Cooper, same, 6. 74. Boland. Proc. Calif. Acad. 3. 80.

Var. **malvaceum.** Gray, Bot. Calif. 1. 207.

R. malvaceum. Smith, Rees. Cyc. Berlandier, DC. Prodr. 3. 483. D. Don, Sweet's Brit. Fl. Gard. 2 ser., t. **340.** Hook. & Arn. Bot. Beechey, 345. Torr. & Gray, Fl. 1. 552. Dietr. 1. 852. Benth. Bot. Sulph. 17; Pl. Hartw. 311. Torrey, Pac. R. Rep. 4. 88 & 7. 11; Mex. Bound. 68; Bot. Wilkes, 306. Kellogg, Proc. Calif. Acad. 1. 46. Bolander, same, 3. 80.

R. tubulosum. Eschscholtz, Mem. Acad. Petersb. 10. 283 (Litt.-Ber. zu Linnæa, 1828, 148; Presl, Repert. Bot. 1. 196). Cham. in Linnæa, 6. 568. Don, Mill. 3. 187. Dietr. 1. 852.

R. tubiflorum. Meyer, Mém. Acad. Mosc. 7. 140, t. **4.** Don, Mill. 3. 137.

R. sanguineum. Hook. & Arn. Bot. Beechey, 141.

Var. **variegatum.** Watson, King's Rep. 5. 100. Gray, Bot. Calif. 1. 207.

R. Nevadense. Kellogg, Proc. Acad. Calif. 1. 63.

R. Wolfii. Rothrock, Am. Naturalist, 8. 358; Pl. Wheeler, 38.

R. sectosum. Lindl. in Trans. Hort. Soc. 7. 240 (Litt.-Ber zu Linnæa, 1830, 110); Bot. Reg. 15, t. **1237.** Hook. Fl. Bor.-Am. 1. 230. Don, Mill. 3. 177. Eat. & Wr. 396. Loud. Arb. 2. 969, f. **716.** Gray, Am. Naturalist, 10. 271 (Gard. Chronicle, 9. 485); Bot. Calif. 1. 206.

R. oxyacanthoides. Hook. Fl. Bor.-Am. 1. 230, excl. var. Richard. Arct. Exped. 428 ? Engelm. Pl. Upp. Miss. 193 ?

R. Cynosbati, var. γ. Hook. Fl. Bor.-Am. 1. 230.

R. oxyacanthoides, var. β. Torr. & Gray, Fl. 1. 546.

R. speciosum. Pursh, 732. Poir. Suppl. 5. 696. Roem. & Schult. Syst. 5. 507. Spreng. Syst. 1. 812. Berlandier, DC. Prodr. 3. 478. Lindl. Bot. Reg. 18, t. **1557.** D. Don, Sweet's Brit. Fl. Gard. 2 ser., t. **149.** Maund, Botanist, t. **38.** Don, Mill. 3. 185, f. **32.** Hook. Bot. Mag. t. **3530.** Hook. & Arn. Bot. Beechey, 345. Torr. & Gray, Fl. 1. 545. Dietr. 1. 853. Eat. & Wr. 396. Loud. Arb. 2. 974, f. **722.** Benth. Pl. Hartw. 311. Sweet, Orn. Fl. Gard. 1, t. **39.** Torrey, Pac. R. Rep. 6. 74; Mex. Bound. 68. Wood, Bot. & Fl. 117. Boland. Cat. 11. Gray, Am. Naturalist, 10. 274 (Gard. Chronicle, 9. 485); Bot. Calif. 1. 204.

R. stamineum. Smith, Rees Cyc. Berlandier, DC. Prodr. 3. 477. Hook. Fl. Bor.-Am. 1. 229. Dietr. 1. 853. Agardh, Theor. Syst. t. **12,** f. **14.**

R. fuchsioides. Berlandier, Mém. Soc. Genèv. 3², t. **3.**

Robsonia speciosa. Spach, Hist. Veg. 6. 181.

R. tortuosum. Benth. Bot. Sulph. 17. Walp. Rep. 5. 822.

R. viscosissimum. Pursh, 163. Poir. Suppl. 5. 695. Roem. & Schult. Syst. 5. 499. Spreng. Syst. 1. 811. Berlandier, DC. Prodr. 3. 482. Dougl. in Trans. Hort. Soc. 7. 511. Hook. Fl. Bor.-Am. 1. 234, t. **76;** Lond. Journ. Bot. 6. 228. Don, Mill. 3. 191. Torr. & Gray, Fl. 1. 551. Dietr. 1. 852. Eat. & Wr. 395. Loud. Arb. 2. 987, f. **738.** Newberry, Pac. R. Rep. 6. 74. Watson, King's Rep. 5. 100; Pl. Wheeler, 8. Porter, Hayd. Rep. 1871, 482. Coulter, same, 1872, 766. Parry, Am. Naturalist, 9. 270. Gray, Bot. Calif. 1. 207.

Corecsma viscosissimum. Spach, Ann. Sci. Nat. 2. 4. 23.

R. affine; laxiflorum.
albinervium; rubrum.
alpinum; prostratum.
Americanum; laxiflorum.
balsamiferum; cereum.
bracteosum; Hudsonianum.
Californicum; Menziesii.
campanulatum; floridum.
Cynosbati; setosum.
ebracteatum; aureum.
echinatum; lacustre.
ferox; Menziesii.
flavum & fragrans; aureum.
fuchsioides; speciosum.
glandulosum; prostratum.
glutinosum; sanguineum.
gracile; Cynosbati, rotundifolium.
hirtellum; oxyacanthoides.
Hudsonianum; prostratum.
inebrians; cereum.
irriguum; divaricatum, oxyacanthoides.
laxiflorum; prostratum.
longiflorum; aureum.
malvaceum; sanguineum.
Missouriense; gracile.
R. Nevadense; sanguineum.
nigrum; floridum, Hudsonianum.
niveum; gracile.
occidentale; Menziesii.
odoratum & Oregoni; aureum.
oxyacanthoides; Cynosbati, lacustre, setosum.
palustre; lacustre, laxiflorum.
Pennsylvanicum; floridum.
petiolare; Hudsonianum.
recurvatum; floridum.
reniforme & resinosum; cereum.
rigens; prostratum.
rotundifolium; oxyacanthoides, gracile.
saxosum; oxyacanthoides.
setosum; lacustre.
stamineum; rotundifolium, speciosum.
subvestitum; Lobbii, Menziesii.
tenuiflorum; aureum.
trifidum; prostratum.
triflorum; divaricatum, gracile, oxyacanthoides, rotundifolium.
tubiflorum & tubulosum; sanguineum.
villosum; divaricatum.
Wolfii; sanguineum.

SAXIFRAGA adscendens. Linn. Spec. 405. See syn. in Seringe, DC. Prodr. 4. 34 (under *S. controversa*); D. Don, Monogr. Saxifr. in Trans. Linn. Soc. 13. 441 (under *S. tridactylites*); Engler, Monogr. Saxifr. 84. — Hook. f. Arct. Pl. 292 & 339. Watson, King's Rep. 5. 93. Porter, Fl. Col. 38. Rothr. Pl. Wheeler, 38.

S. petræa. Hook. Fl. Bor.-Am. 1. 245; Bot. Mag. t. 3026. Don, Mill. 3. 225. Torr. & Gray, Fl. 1. 574. Eat. & Wr. 414. Dietr. 2. 1537.

S. controversa. Sternberg, Rev. Saxifr. 43, t. 16 & 17, fig. d. c. Gray, Proc. Acad. Philad. 1863, 62. Pl. Bourgeau, 256.

Ponista Oregonensis. Raf. Fl. Tellur. 2. 66.

S. tridactylites. Engler, l. c., as to American habitat.

S. aizoides. Linn. Spec. 403. See syn. in Sternb. Rev. Saxifr. 25 & Suppl. 2. 27; D. Don, Monogr. Saxifr. 375; Seringe, DC. Prodr. 4. 47; Ledeb. Fl. Ross. 2. 209; Engler, Monogr. Saxifr. 219. — Pursh, 312. Richard. Frankl. Journ. 9. Hook. Fl. Bor.-Am. 1. 255. Meyer, Pl. Lab. 69. Don, Mill. 3. 212. Torr. & Gray, Fl. 1. 565. Dietr. 2. 1529. Eat. & Wr. 414. Durand, Pl. Kane. in Journ. Acad. Philad. 1856, 192 (Kane's Exped. 2. 455). Lange, Pl. Groenl. 128. Hook. f. in Journ. Linn. Soc. 1. 121; Arct. Pl. 292. Pl. Bourgeau, 256. Gray, Manual, 168.

Evaizoa aizoides. Raf. Fl. Tellur. 2. 70.

S. Aizoon. Jacq. Fl. Austr. 5. 18, t. 438. See syn. in Sternb. Rev. Saxifr. 3; D. Don, Monogr. Saxifr. 392; Seringe, DC. Prodr. 4. 19; Ledeb. Fl. Ross. 2. 183; Engler, Monogr. Saxifr. 241. — Pursh, 310. Schrank, Pfl. Lab. 21. Hook. Fl. Bor.-Am. 1. 243. Meyer, Pl. Lab. 67. Don, Mill. 3. 215. Torr. & Gray, Fl. 1. 566. Eat. & Wr. 412. Vahl, Fl. Dan. 14, t. 2352. Durand, Pl. Kane. l. c. 192 (445). Lange, Pl. Groenl. 128. Hook. f. in Journ. Linn. Soc. 1. 117; Arct. Pl. 292 & 339. Gray, Manual, 168. Matthew, Fl. Acad. 15. Wooster, Alp. Pl. 82, t. 28, f. 1.

S. bronchialis. Linn. Spec. 400. See syn. in Sternb. Rev. Saxifr. 31; Seringe, DC. Prodr. 4. 47; Ledeb. Fl. Ross. 2. 207; Middend. Fl. Taimyr. 41; Trautv. & Mey. Fl. Ochot. 41; Engler, l. c. 215. — Pursh, 310. Spreng. Syst. 2. 364. Torrey, Ann. Lyc. N. Y. 2. 204. Hook. Fl. Bor.-Am. 1. 254. Sternb. in Linnæa, 6. 555. Don, Mill. 3. 212. Torr. & Gray, Fl. 1. 564. Eat. & Wr. 413. Gray, Pl. Fendl. 54; Am. Journ. Sci. 2. 33. 409; Proc. Acad. Philad. 1863, 62. Seem. Bot. Herald, 31. Hook. f. Arct. Pl. 292. Pl. Bourgeau, 257. Rothr. Fl. Alask. 446; Pl. Wheeler, 38. Porter, Hayd. Rep. 1870, 475, & 1871, 482; Fl. Col. 39. Coulter, Hayd. Rep. 1872, 766.

Var. **cherlerioides.** Engler, Monogr. Saxifr. 216, with syn.

S. cherlerioïdes. D. Don, Monogr. Saxifr. 382. Sternb. Rev. Saxifr. Suppl. 2. 26, t. 13.

S. n. sp. Sternb. in Linnæa, 6. 555.

S. bronchialis, var. *minor.* Hook. & Arn. Bot. Beechey, 114.

S. Pseudo-Burserlana. Fischer; Torr. & Gray, Fl. 1. 565. Walp. Rep. 2. 365.

S. nitida. Ledeb. Fl. Ross. 2. 207, not Schreber. Rothr. Fl. Alask. 446.

S. bryophora. Gray, Proc. Am. Acad. 6. 533; Bot. Calif. 1. 194.

S. leucanthemifolia, var. *integrifolia.* Engler, Monogr. Saxifr. 135.

S. cæspitosa. Linn. Spec. 404, in part. See syn. in D. Don, Monogr. Saxifr. 428; Ledeb. Fl. Ross. 2. 224; Regel, Ind. Sem. Petrop. 1866, 99; Middend. Fl. Taimyr. 45; Hook. f. Arct. Pl. 292 & 329; Engler, Linnæa, 35. 42, and (as *S. decipiens*, Ehrh.) Monogr. Saxifr. 186; Baker, Seem. Journ. Bot. 8. 281. — Pursh, 312. Spreng. Syst. 2. 370. Hook. Fl. Bor.-Am. 1. 244. Don, Mill. 3. 222. Hook. & Arn. Bot. Beechey, 123. Torr. & Gray, Fl. 1. 565. Eat. & Wr. 415. Seem. Bot. Herald, 31 & 56. Hook. f. in Journ. Linn. Soc. 1. 117, 122 & 124, & 5. 83. Dickie, same, 3. 111 & 11. 33. Durand, Pl. Kane. in Journ. Acad. Philad. 1856, 192 (Kane's Exped. 2. 455). Ascherson, Regensb. Flora, 1860, 370. Pl. Bourgeau, 257. Rothr. Fl. Alask. 447. Watson, King's Rep. 5. 93 & 420. Porter, Fl. Col. 38.

? *S. androsacea.* Pursh, 310. Poir. Suppl. 5. 77. Hook. Fl. Bor.-Am. 1. 244. Torr. & Gray, Fl. 1. 576. Eat. & Wr. 413. Ledeb. Fl. Ross. 2. 225. Rothr. Fl. Alask. 447.

S. pubescens. Sternb. in Linnæa, 6. 556.

S. exarata. Hook. Fl. Bor.-Am. 1. 244, excl. syn. Torr. & Gray, Fl. 1. 566. Eat. & Wr. 414. Rothr. Fl. Alask. 447.

S. exarata, var. *pubescens.* Ledeb. Fl. Ross. 2. 224, in part.

S. decipiens, var. *cæspitosa.* Engler, Monogr. Saxifr. 190.

Var. **uniflora.** Hook. Trans. Linn. Soc. 14. 370; Fl. Bor.-Am. 1. 244. Torr. & Gray, Fl. 1. 565. Durand, Pl. Kane. l. c. 102 (455); Pl. Hayes, Proc. Acad. Philad. 1863, 94. Gray, Am. Journ. Sci. 2. 33. 409.

S. venosa. Haworth, Enum. Sax. 28. Seringe, DC. Prodr. 4. 26. Hook. Fl. Bor.-Am. 1. 244. Don, Mill. 3. 224. Dietr. 2. 1536.

S. cæspitosa. R. Brown, Ross' Voy. 2 ed. 2. 192. Seringe, DC. Prodr. 4. 27.

S. uniflora. R. Brown, Parry's 1st Voy. Appx. 274 & 309 (Regensb. Flora, 7², Beil. 83). Don, Mill. 3. 222.

Evaiezoa venosa. Raf. Fl. Tellur. 2. 71.

Var. **Grœnlandica.** Wahl. Fl. Lapp. 119. Willd. Spec. 2. 657. Greville, Mem. Soc. Wern. 3. 423.

S. Grœnlandica. Linn. Spec. 404. Sternb. Rev. Saxifr. 53. Haworth, Enum. Saxifr. 30. Richard. Frankl. Journ. 10. Seringe, DC. Prodr. 4. 27. Lange, Pl. Groenl. 128.

S. hirta. Hook. f. in Journ. Linn. Soc. 1. 117.
S. cæspitosa, var. *compacta*, Koch. Regel, l. c.
S. decipiens, var. *arctica.* Engler, Linnæa, 35. 46.
S. decipiens, var. *Grœnlandica.* Engler, Monogr. Saxifr. 189.

Var. **Sternbergii.** Regel, l. c. 100.
S. Sternbergii. Willd. Hort. Berol. 1. 402. Sternb. Rev. Saxifr. 56, t. 24.
S. decipiens, var. *Sternbergii.* Engler, l. c. 188.

S. Careyana. Gray, Am. Journ. Sci. 1. 42. 32 (Lond. Journ. Bot. 2. 116). Chapman, 153. Wood, Cl.-Book, 371; Bot. & Fl. 114. Engler, Monogr. Saxifr. 136.

S. Caroliniana. Gray, Chloris Bor.-Am. in Mem. Amer. Acad. 3. 39. Chapman, 153.
S. Careyana, var. *Caroliniana.* Engler, l. c. 137.

S. cernua. Linn. Spec. 403. See syn. in Sternb. Rev. Saxifr. 18; D. Don, Monogr. Saxifr. 364; Seringe, DC. Prodr. 4. 36; Ledeb. Fl. Ross. 2. 219; Middend. Fl. Taimyr. 44; Engler, Monogr. Saxifr. 106. — Greville, Mem. Soc. Wern. 3. 423. R. Brown, Parry's 1st Voy. 275. Richard. Frankl. Journ. 9. Hook. in Trans. Linn. Soc. 14. 371; Fl. Bor.-Am. 1. 245. Sternberg, Linnæa, 6. 554. Hook. & Arn. Bot. Beechey, 124, excl. var. Torr. & Gray, Fl. 1. 573. Eat. & Wr. 415. Seller, Ann. & Mag. Nat. Hist. 1. 16. 172. Trautv. Pl. Imag. & Descr. Fl. Ross. 63, t. 40. Seem. Bot. Herald, 31, 52, 55 & 56. Lange, Pl. Groenl. 128. Hook. f. in Journ. Linn. Soc. 1. 117, 122 & 124, & 5. 83; Arct. Pl. 292 & 329. Dickie, Journ. Linn. Soc. 3. 111 & 11. 33. Durand, Pl. Kane. in Journ. Acad. Philad. 1856, 193 (Kane's Exped. 2. 456); Pl. Hayes, Proc. Acad. Philad. 1863, 94. Gray, Am. Journ. Sci. 2. 33. 409, in part; Proc. Acad. Philad. 1863, 62. Pl. Bourgeau, 257. Rothr. Fl. Alask. 446. Porter, Fl. Col. 38.
? *S. Sibirica.* Pursh, 312. Meyer, Pl. Lab. 70. Hook. Fl. Bor.-Am. 1. 246. Torr. & Gray, Fl. 1. 573, in part. Eat. & Wr. 415.

S. chrysantha. Gray, Proc. Am. Acad. 11. 83.
S. Hirculus? Gray, Am. Journ. Sci. 2. 33. 409.
S. serpyllifolia. Gray, Proc. Am. Acad. 1863, 62. Porter, Hayd. Rep. 1871, 482; Fl. Col. 39. Rothr. Pl. Wheeler, 37.

S. Davurica. Pallas, Itin. 3, Appx., t. P., f. 2. Willd. Spec. 2. 645. See syn. in Ledeb. Fl. Ross. 2. 212; Engler, Monogr. Saxifr. 147. — Hook. Fl. Bor.-Am. 1. 250. Don, Mill. 3. 218. Sternb. in Linnæa, 6. 554. Hook. & Arn. Bot. Beechey, 124. Torr. & Gray, Fl. 1. 569, in part. Eat. & Wr. 414. Seem. Bot. Herald, 31. Hook. f. Arct. Pl. 292. Rothr. Fl. Alask. 447.

Var. **Unalaschcensis.** Engler, l. c. 148.
S. Unalaschcensis. Sternberg, Rev. Saxifr. Suppl. 2. 9.
S. flabellifolia. R. Brown; Torr. & Gray, Fl. 1. 569. Walp. Rep. 2. 366. Ledeb. Fl. Ross. 2. 213.

S. debilis. Engelm.; Gray, Proc. Acad. Philad. 1863, 62. Porter, Fl. Col. 38.
S. cernua. Gray, Am. Journ. Sci. 2. 33. 409, in part.
S. rivularis. Watson, King's Rep. 5. 93.
S. cernua, var. *debilis.* Engler, Monogr. Saxifr. 107.

S. elegans. Nutt.; Torr. & Gray, Fl. 1. 573. Walp. Rep. 2. 366. Gray, Proc. Am. Acad. 8. 383.

S. erosa. Pursh, 311. Poir. Suppl. 5. 77. Nutt. Genera, 1. 285. Otto, Nees Hor. Phys. Berol. 33. Elliott, 1. 512. D. Don, Monog. Saxifr. 360. Spreng. Syst. 2. 363. Seringe, DC. Prod. 4. 41. Don, Mill. 3. 208. Spach, Hist. Veg. 5. 44. Torr. & Gray, Fl. 1. 572. Eat. & Wr. 413. Dietr. 3. 1527. Chapman, 153. Gray,

Am. Journ. Sci. 1. 42. 33 (Lond. Journ. Bot. 2. 116); Manual, 168. Engler, Monogr. Saxifr. 150.

Robertsonia micranthifolia. Haworth, Syn. Pl. Succ. 322.

Aulaxia micranthifolia & nuda. Haworth, Enum. Saxifr. 47.

S. Caroliniana & gracilis. Schleich. Cat. 1821, 63.

S. nuda. Seringe, DC. Prodr. 4. 41. Don, Mill. 3. 208.

Evaiezoa erosa. Raf. Fl. Tellur. 2. 71.

S. Wolleana. Torr. & Gray, Fl. 1. 569. Walp. Rep. 2. 366.

S. Eschscholtzii. Sternb. Rev. Saxifr. Suppl. 1. 9, **t. 10, f. 2,** & Suppl. 2. 90. Seringe, DC. Prodr. 4. 18. Hook. Fl. Bor.-Am. 1. 243. Don, Mill. 3. 214. Torr. & Gray, Fl. 1. 564. Dietr. 2. 1531. Ledeb. Fl. Ross. 2. 208. Seem. Bot. Herald, 30. Hook. f. Arct. Pl. 292. Rothr. Fl. Alask. 446. Engler, Monogr. Saxifr. 212.

S. fimbriata. Don, Monogr. Saxifr. 404. Spreng. Syst. 2. 367. Eat. & Wr. 413.

Evaiezoa Eschscholtzii. Raf. Fl. Tellur. 2. 70.

S. exilis. Stephan; Sternberg, Rev. Saxifr. Suppl. 1. 8, **t. 3, f. 1;** Linnæa, 6. 556. Seringe, DC. Prodr. 4. 35. Hook. Fl. Bor.-Am. 1. 245. Don, Mill. 3. 211. Torr. & Gray, Fl. 1. 573. Ledeb. Fl. Ross. 2. 221. Rothr. Fl. Alask. 447. Engler, Monogr. Saxifr. 102. Referred to *S. cernua* by Hook. f. in Arct. Pl. 329.

Lobaria exilis. Haworth, Enum. Saxifr. 20.

S. elegans. Sternb. Rev. Saxifr. Suppl. 2. 34.

Evaiezoa exilis. Raf. Fl. Tellur. 2. 71.

? *S. cernua,* var. *multiflora.* Hook. & Arn. Bot. Beechey, 124. Don, Mill. 3. 210.

? *S. Sibirica.* Torr. & Gray, Fl. 1. 573, in part. Seem. Bot. Herald, 31. Hook. f. Arct. Pl. 292. Rothr. Fl. Alask. 447.

S. flagellaris. Willd.; Sternb. Rev. Saxifr. 25, **t. 6,** & Suppl. 2. 18. See syn. in D. Don, Monogr. Saxifr. 373; Seringe, DC. Prodr. 4. 45; Ledeb. Fl. Ross. 2. 209; Middend. Fl. Taimyr. 42; Engler, l. c. 223. — R. Brown, Ross' Voy. 142; Parry's 1st Voy. 273. Hook. in Trans. Linn. Soc. 14. 369; Fl. Bor.-Am. 1. 253, **t. 87;** Bot. Mag. **t. 4621.** Torrey, Ann. Lyc. N. Y. 2. 203. Don, Mill. 3. 211, **f. 42.** Hook. & Arn. Bot. Beechey, 124. Torr. & Gray, Fl. 1. 564. Vahl, Fl. Dan. 14, **t. 2353.** Seem. Bot. Herald, 31 & 55. Durand, Pl. Kane. in Journ. Acad. Philad. 1856, 192 (Kane's Exp. 2. 455); Pl. Hayes, Proc. Acad. Philad. 1868, 94. Lange, Pl. Groenl. 128. Hook. f. in Journ. Linn. Soc. 1. 117 & 121, & 5. 83; Arct. Pl. 292. Gray, Am. Journ. Sci. 2. 33. 409; Proc. Acad. Philad. 1863, 62. Rothr. Fl. Alask. 446; Pl. Wheeler, 38. Watson, King's Rep. 5. 94. Porter, Fl. Col. 39.

S. setigera. Pursh, 312. Poir. Suppl. 5. 77. Eat. & Wr. 414.

Hirculus flagellaris. Haworth, Enum. Saxifr. 41.

S. Forbesii. Vasey, Am. Entomologist & Botanist, 2. 288.

S. heterantha. Hook. Fl. Bor.-Am. 1. 252, **t. 78, B.** Don, Mill. 3. 209. Eat. & Wr. 414. Dietr. 2. 1528. Ledeb. Fl. Ross. 2. 216. Rothr. Fl. Alask. 447. Boland. Cat. 11. Gray, Proc. Am. Acad. 8. 383. To *S. punctata* by Hook. f. Arct. Pl. 292.

S. Mertensiana. Bongard, Veg. Sitch. 141 (Presl, Repert. Bot. 1. 315). Torr. & Gray, Fl. 1. 568. Walp. Rep. 2. 366. Engler, Monogr. Saxifr. 139. Gray, Bot. Calif. 1. 195.

Steiranisia heterantha. Raf. Fl. Tellur. 2. 69.

S. æstivalis, var. *δ.* Torr. & Gray, Fl. 1. 568.

S. punctata. Hook. in Lond. Journ. Bot. 6. 231.

S. hieracifolia. Waldst. & Kit. Pl. Rar. Hung. 1. 17, **t. 18.** See syn. in Sternb. Rev. Saxifr. 9, & Suppl.; D. Don, Saxifr. 383; Ledeb. Fl. Ross. 2. 214; Engler, Monogr. Saxifr. 151. — Seringe, DC. Prodr. 4. 38. Hook. Fl. Bor.-Am. 1. 249.

Sternb. in Linnæa, 6. 554. Don, Mill. 3. 217. Hook. & Arn. Bot. Beechey, 124. Torr. & Gray, Fl. 1. 572. Eat. & Wr. 414. Seem. Bot. Herald, 31. Hook. f. in Journ. Linn. Soc. 1. 122; Arct. Pl. 292 & 329. Rothr. Fl. Alask. 447.

S. plantiginifolia. Hook. in Parry's 2d Voy. 394.

Evaiezoa hieracifolia. Raf. Fl. Tellur. 2. 70.

S. Hirculus. Linn. Spec. 402. See syn. in Sternb. Rev. Saxifr. 24; D. Don, Monogr. Saxifr. 372; Seringe, DC. Prodr. 4. 45; Ledeb. Fl. Ross. 2. 210; Middend. Fl. Taimyr. 42; Engler, Monogr. Saxifr. 122. — Richard. Frankl. Journ. 9. R. Brown, Parry's 1st. Voy. 273 (Regensb. Flora, 7², Beil. 82). Hook. in Trans. Linn. Soc. 14. 369; Fl. Bor.-Am. 1. 252. Sternb. in Linnæa, 6. 555. Don, Mill. 3. 211. Hook. & Arn. Bot. Beechey, 124. Torr. & Gray, Fl. 1. 564. Eat. & Wr. 414. Seem. Bot. Herald, 31, 52 & 55. Hook. f. in Journ. Linn. Soc. 1. 116, 121 & 124, & 5. 83; Arct. Pl. 292 & 329. Gray, Am. Journ. Sci. 2. 33. 409; Proc. Acad. Philad. 1863, 62. Rothr. Fl. Alask. 446; Pl. Wheeler, 37. Porter, Fl. Col. 39.

S. propinqua. R. Brown, Ross' Voy. 142; Parry's 3d Voy. 273.

Hirculus propinquus. Haworth, Enum. Saxifr. 41.

S. integrifolia. Hook. Fl. Bor.-Am. 1. 249, **t. 86**; Lond. Journ. Bot. 6. 231. Don, Mill. 3. 218. Torr. & Gray, Fl. 1. 572. Eat. & Wr. 413. Walp. Rep. 2. 367. Dietr. 2. 1533. Newberry, Pac. R. Rep. 6. 75. Cooper, same, 12. 61. Boland. Cat. 11. Watson, King's Rep. 5. 93. Gray, Proc. Am. Acad. 8. 382; Bot. Calif. 1. 194. Porter, Fl. Col. 40. Engler, Monogr. Saxifr. 149.

S. hieracifolia, var. ? Gray, Am. Journ. Sci. 2. 33. 409.

S. nivalis, var. ? Gray, Proc. Acad. Philad. 1863, 62.

S. hieracifolia. Porter, Hayd. Rep. 1871, 782. Coulter, same, 1872, 766.

S. nivalis, var. *Grayi.* Rothr. Pl. Wheeler, 38.

S. Jamesii. Torrey, Ann. Lyc. N. Y. 2. 204. Seringe, DC. Prodr. 4. 43. Sternb. Rev. Saxifr. Suppl. 2. 16. Hook. Fl. Bor.-Am. 1. 47, **t. 84.** Don, Mill. 3. 209. Torr. & Gray, Fl. 1. 574. Eat. & Wr. 413. Walp. Rep. 2. 367. Dietr. 2. 1528. Gray, Proc. Acad. Philad. 1863, 62. Porter, Hayd. Rep. 1871, 481; Fl. Col. 40. Coulter, Hayd. Rep. 1872, 766. Engler, Monogr. Saxifr. 109.

Telesonix Jamesii. Raf. Fl. Tellur. 2. 69.

S. leucanthemifolia. Michx. Fl. 1. 268. Poir. Dict. 6. 679. Sternb. Rev. Saxifr. 10. Pursh, 311. Elliott, 1. 512. D. Don, Monogr. Saxifr. 358, in part. Spreng. Syst. 2. 362. Don, Mill. 3. 208. Presl, Rel. Hænk. 2. 55. Torr. & Gray, Fl. 1. 570. Eat. & Wr. 413. Dietr. 2. 1527. Chapman, 153. Rothr. Fl. Alask. 446. Gray, Manual, 108; Bot. Calif. 195. Engler, Monogr. Saxifr. 135, excl. var. *integrifolia.*

Spatularia leucanthemifolia. Haworth, Enum. Saxifr. 48.

S. Clusii. Seringe, DC. Prodr. 4. 40, in part. Kunze, Linnæa, 20. 43.

Hexaphoma petiolaris. Raf. Fl. Tellur. 2. 67.

Var. [**ferruginea**]. Torr. & Gray, Fl. 1. 570.

S. ferruginea. Graham, Edinb. Phil. Journ. 1829, 349 (Litt.-Ber. zu Linnæa, 1830, 157).

S. leucanthemifolia. Lodd. Bot. Cab. **t. 1568.** Hook. Fl. Bor.-Am. 1. 250; Bot. Mag. t. 2959.

Hexaphoma ferruginea. Raf. Fl. Tellur. 266.

S. stellaris, var. *leucanthemifolia.* Ledeb. Fl. Ross. 2. 211.

Var. **Brunoniana.** Torr. & Gray, Fl. 1. 570. Engler, l. c. 135.

S. stellaris, var. *Brunoniana.* Bongard, Veg. Sitch. 140.

S. Bongardi. Presl, Repert. Bot. 1. 315.

S. Lyallii. Engler, Index Crit. Saxifr. 30; Monogr. Saxifr. 141. Walp. Ann. 7. 893.

S. Davurica. Torr. & Gray, Fl. 1. 569, in part. Pl. Bourgeau, 257.

S. nivalis. Linn. Spec. 401, excl. syn. Gronov. See syn. in Poir. Dict. 6. 683; Sternb. Rev. Saxifr. 12; D. Don, Monogr. Saxifr. 387; Seringe, DC. Prodr. 4. 38; Ledeb. Fl. Ross. 2. 213; Middend. Fl. Taimyr. 43; Engler, Monogr. Saxifr. 145. — Pursh, 310. James, Cat. 181; Long's Exp. 2. 345. Richard. Frankl. Journ. 9. R. Brown, Parry's 1st Voy. 275 (Regensb. Flora, 7², Beil. 84). Hook. in Trans. Linn. Soc. 14. 371; Fl. Bor.-Am. 1. 248. Torrey, Ann. Lyc. N. Y. 2. 203; Bot. Wilkes, 309. Meyer, Pl. Lab. 68. Sternb. in Linnæa, 6. 554. Don, Mill. 3. 218. Torr. & Gray, Fl. 1. 571. Eat. & Wr. 413. Seem. Bot. Herald, 31, 52, 55 & 56. Durand, Pl. Kane. in Journ. Acad. Philad. 1856, 192 (Kane's Exped. 2. 455); Pl. Hayes, Proc. Acad. Philad. 1863, 94. Lange, Pl. Groenl. 128. Hook. f. in Journ. Linn. Soc. 1. 117, 122 & 124, & 5. 83; Arct. Pl. 292 & 329. Dickie, Journ. Linn. Soc. 3. 111 & 11. 33. Gray, Am. Journ. Sci. 2. 33. 409; Proc. Acad. Philad. 1863, 62; Bot. Calif. 194. Rothr. Fl. Alask. 447; Pl. Wheeler, 38. Watson, King's Rep. 5. 93. Porter, Hayd. Rep. 1871, 482; Fl. Col. 39. Coulter, Hayd. Rep. 1872, 766.

Dermasea nivalis. Haworth, Enum. Saxifr. 9.

S. pauciflora. Sternb. Rev. Saxifr. Suppl. 1. 6. Seringe, DC. Prodr. 4. 42. Seem. Bot. Herald, 55.

Var. tenuis. Wahl. Fl. Lapp. 114. Hook. Fl. Bor.-Am. 1. 248. Torr. & Gray, Fl. 1. 571. Durand, l. c. 192. Lange, Pl. Groenl. 128. Gray, Bot. Calif. 194.

S. nivalis. Watson, King's Rep. 5. 93, in part.

S. nudicaulis. D. Don, Monogr. Saxifr. 366. Spreng. Syst. 2. 363. Sternb. Rev. Saxifr. Suppl. 2. 36. Seringe, DC. Prodr. 4. 37. Hook. Fl. Bor.-Am. 1. 252. Don, Mill. 3. 209. Torr. & Gray, Fl. 1. 568. Eat. & Wr. 415. Dietr. 2. 1528. Ledeb. Fl. Ross. 2. 216. Rothr. Fl. Alask. 447. Referred doubtfully to *S. rivularis* by Engler, Monogr. Saxifr. 104.

S. oppositifolia. Linn. Spec. 402. See syn. in Sternb. Rev. Saxifr. 36; D. Don, Monogr. Saxifr. 400; Seringe, DC. Prodr. 4. 17; Ledeb. Fl. Ross. 2. 204; Middend. Fl. Taimyr. 41; Engler, Monogr. Saxifr. 276. — Pursh, 311. Schrank, Pfl. Lab. 21. R. Brown, Ross' Voy. 142; Parry's 1st Voy. 273. Greville, Mem. Soc. Wern. 3. 423. Richard. Frankl. Journ. 2 ed. 9. Hook. in Trans. Linn. Soc. 14. 369; Fl. Bor.-Am. 1. 242. Spreng. Syst. 2. 367. Meyer, Pl. Lab. 69. Don, Mill. 3. 214. Torr. & Gray, Fl. 1. 563. Eat. & Wr. 414. Dietr. 2. 1531. Seller, Ann. & Mag. Nat. Hist. 1. 16. 171. Seem. Bot. Herald, 30, 52, 55 & 56. Durand, Pl. Kane. in Journ. Acad. Philad. 1856, 191 (Kane's Exped. 2. 454); Pl. Hayes, Proc. Acad. Philad. 1863, 94. Lange, Pl. Groenl. 128. Hook. f. in Journ. Linn. Soc. 1. 117, 122 & 124, & 5. 83; Arct. Pl. 292. Dickie, Journ. Linn. Soc. 3. 111 & 11. 33. Pl. Bourgeau, 256. Rothr. Fl. Alask. 446. Gray, Manual, 167. Porter, Hayd. Rep. 1871, 482. Coulter, same, 1872, 766.

Antiphylla cærulea, & A. spathulata, var. (?) *arctica.* Haworth, l. c. 43 & 45.

S. spathulata, var. (?) *arctica.* Seringe, l. c. Torr. & Gray, Fl. 1. 570.

S. retusa. Sternb. in Linnæa, 6. 556.

Evaiezoa oppositifolia. Raf. Fl. Tellur. 2. 70.

S. Parryi. Gray, Mex. Bound. 69, t. 25; Bot. Calif. 1. 193. Walp. Ann. 7. 898. Engler, Monogr. Saxifr. 284.

S. peltata. Torrey, in Benth. Pl. Hartw. 311; Bot. Wilkes, 309, t. 5. Walp. Ann. 2. 688. Durand, Pl. Pratten. 88. Newberry, Pac. R. Rep. 6. 75. Boland.

Cat. 11. Heer in Regel, Gart. Fl. 1872, 259, t. 735. Hook. f. Bot. Mag. t. 6074. Engler, Monogr. Saxifr. 108. Gray, Bot. Calif. 1. 193.

Leptarrhena inundata. Behr, Proc. Calif. Acad. 1. 45 & 57.

S. Pennsylvanica. Linn. Spec. 399, excl. syn. Pluk. Hill, Veg. Syst. 13, t. 14, f. 3. Ait. Hort. Kew. 2. 78. Willd. Spec. 2. 640; Enum. 459. Michx. Fl. 1. 269. Poir. Dict. 6. 674. Persoon, 1. 487. Sternb. Rev. Sax. 8. Pursh, 311. Bigel. Fl. Bost. 177. D. Don, Monogr. Saxifr. 384. Otto, in Nees, Hor. Phys. Berol. 33. Torrey, Fl. U. S. 444; Fl. N. Y. 1. 255. Spreng. Syst. 2. 365. Seringe, DC. Prodr. 4. 39. Hook. Fl. Bor.-Am. 1. 249. Don, Mill. 3. 217. Beck, Bot. 138. Darling. Fl. Cestr. 270. Torr. & Gray, Fl. 1. 572. Eat. & Wr. 413. Dietr. 2. 1533. Gray, Manual, 168. Engler, Monogr. Saxifr. 149.

S. semipubescens. Sweet, Hort. Suburb. 97. D. Don, Monogr. Saxifr. 385. Spreng. Syst. 2. 365. Seringe, DC. Prodr. 4. 40. Don, Mill. 3. 217. Eat. & Wr. 413. Dietr. 2. 1533.

S. palustris. Link, Enum. 1. 412.

Micranthes Pennsylvanica & hirta. Haworth, Enum. Saxifr. 45 & 46.

Evaiezoa Pennsylvanica. Raf. Fl. Tellur. 2. 71.

S. punctata. Linn. Spec. 401. See syn. in Sternb. Rev. Saxifr. 18; Ledeb. Fl. Ross. 2. 215; Middend. Fl. Taimyr. 44, and Trautv. & Meyer, Fl. Ochot. 42, under *S. æstivalis;* Engler, Monogr. Saxifr. 137. — Sternb. Rev. Suppl. 2. 7, t. 4; Linnæa, 6. 554. Hook. Fl. Bor.-Am. 1. 251. Bongard, Veg. Sitch. 140. Hook. & Arn. Bot. Beechey, 114 & 124. Eat. & Wr. 414. Trautv. Pl. Imag. 57, t. 37. Hook. f. Arct. Pl. 292 & 330. Gray, Am. Journ. Sci. 2. 33. 409; Proc. Acad. Philad. 1863, 62; Proc. Am. Acad. 8. 383; Bot. Calif. 1. 195. Rothr. Fl. Alask. 447; Pl. Wheeler, 38. Watson, King's Rep. 5. 94; Pl. Wheeler, 8. Porter, Hayd. Rep. 1871, 482; Fl. Col. 39. Coulter, Hayd. Rep. 1872, 766.

S. Geum. Pursh, 311. Eat. & Wr. 413.

S. spicata & arguta. D. Don, Monogr. Saxifr. 354 & 356. Spreng. Syst. 2. 362. Seringe, DC. Prodr. 4. 40 & 41. Hook. Fl. Bor.-Am. 1. 251. Don, Mill. 3. 207. Torr. & Gray, Fl. 1. 567 & 568. Eat. & Wr. 413. Dietr. 2. 1527. Ledeb. Fl. Ross. 2. 215 & 216. Rothr. Fl. Alask. 447.

S. umbrosa, var. *punctata.* D. Don, l. c. 352. Don, Mill. 3. 207.

Robertsonia punctata. Haworth, Enum. Saxifr. 55.

S. gracilis. Stephan; Sternb. Rev. Suppl. 1. 7, t. 5, f. 1.

S. hirsuta, var. *punctata.* Seringe, DC. Prodr. 4. 42.

S. æstivalis. Fisch. in Ind. Sem. Petrop. 1835, 37. Torr. & Gray, Fl. 1. 567, excl. var. δ. Seem. Bot. Herald, 31.

Evaiezoa punctata. Raf. Fl. Tellur. 2. 70.

Var. **Nelsoniana.** Engler, l. c. 139.

S. Nelsoniana. D. Don, Monogr. Saxifr. 355. Spreng. Syst. 2. 362. Seringe, DC. Prodr. 4. 41. Hook. Fl. Bor.-Am. 1. 251. Don, Mill. 3. 207. Eat. & Wr. 413. Dietr. 2. 1527. Ledeb. Fl. Ross. 2. 216. Rothr. Fl. Alask. 447.

S. æstivalis, var. β. Torr. & Gray, Fl. 568.

S. ranunculifolia. Hook. Fl. Bor.-Am. 1. 246, t. 83. Don, Mill. 3. 211. Torr. & Gray, Fl. 1. 575 & 577. Eat. & Wr. 414. Dietr. 2. 1529. Walp. Rep. 2. 367. Engler, Monogr. Saxifr. 110.

Hemieva ranunculifolia. Raf. Fl. Tellur. 2. 70.

Boykinia ranunculifolia. Gray, Am. Journ. Sci. 1. 42. 21 (Lond. Journ. Bot. 1. 228); Chloris Bor.-Am. in Mem. Am. Acad. 3. 40.

S. reflexa. Hook. Fl. Bor.-Am. 1. 249, t. 85. Don, Mill. 3. 218, f. 45. Torr. & Gray, Fl. 1. 568. Eat. & Wr. 413. Dietr. 2. 1533. Walp. Rep. 2. 366. Engler,

Monogr. Saxifr. 143. Referred to *S. Virginiensis* by Hook. f. in Arct. Pl., and doubtfully by Gray, Am. Journ. Sci. 2. 33. 409, to *S. Davurica.*

Steiranisia reflexa. Raf. Fl. Tellur. 2. 69.

S. Virginiensis. Hook. f. Arct. Pl. 292 & 329, as to Arctic habitat.

S. rivularis. Linn. Spec. 404. See syn. in Sternb. Rev. Saxifr. 18 & Suppl. 2. 36; D. Don, Monogr. Saxifr. 367; Seringe, DC. Prodr. 4. 36; Ledeb. Fl. Ross. 2. 221; Middend. Fl. Taimyr. 45; Engler, Monogr. Saxifr. 104. — Pursh, 312. Schrank, Pfl. Lab. 22. Hook. in Trans. Linn. Soc. 14. 370; Fl. Bor.-Am. 1. 246. Meyer, Pl. Lab. 70. Hook. & Arn. Bot. Beechey, 124. Torr. & Gray, Fl. 1. 574. Eat. & Wr. 415. Seller, Ann. & Mag. Nat. Hist. 16. 172. Seem. Bot. Herald, 32 & 56. Durand, Pl. Kane. in Journ. Acad. Philad. 1856, 193 (Kane's Exped. 2. 456); Proc. Acad. Philad. 1863, 94. Lange, Pl. Groenl. 128. Hook. f. in Journ. Linn. Soc. 1. 117 & 124, & 5. 83; Arct. Pl. 292 & 329. Dickie, Journ. Linn. Soc. 3. 111 & 11. 33. Rothr. Fl. Alask. 447. Gray, Manual, 167. Watson, King's Rep. 5. 93, in part. Porter, Fl. Col. 38.

S. petiolaris. R. Brown, Ross' Voy. 142. Hook. in Parry's 1st Voy. 274 (Regensb. Flora, 7², Beil. 83). Richard. Frankl. Journ. 14. Torr. & Gray, Fl. 1. 576.

S. Cymbalaria, & var. *β.* Sternb. in Linnæa, 6. 555. Torr. & Gray, Fl. 1. 574.

Evaiezoa rivularis. Raf. Fl. Tellur. 2. 71.

Var. hyperborea. Hook. Fl. Bor.-Am. 1. 246. Torr. & Gray, Fl. 1. 574.

S. hyperborea. R. Brown, Parry's 1st Voy. 274. Seringe, DC. Prodr. 4. 37. Sternb. Rev. Saxifr. Suppl. 2. 38. Don, Mill. 3. 210. Dietr. 2. 1529. Pl. Bourgeau, 256.

Var. Laurentiana. Engler, l. c. 105.

S. Laurentiana. Seringe, DC. Prodr. 4. 35. Hook. Fl. Bor.-Am. 1. 245. Sternb. in Linnæa, 6. 556. Don, Mill. 3. 211. Torr. & Gray, Fl. 1. 573. Eat. & Wr. 413.

S. vaginata. Presl; Sternb. Rev. Suppl. 2. 39.

Evaiezoa Laurentiana. Raf. Fl. Tellur. 2. 71.

S. serpyllifolia. Pursh, 310. See syn. in Sternb. Rev. Saxifr. Suppl. 2. 93; Ledeb. Fl. Ross. 2. 210; Middend. Fl. Taimyr. 42; Engler, Monogr. Saxifr. 209. — Poir. Suppl. 5. 77. D. Don, Monogr. Saxifr. 405. Spreng. Syst. 2. 367. Seringe, DC. Prodr. 4. 25. Hook. Fl. Bor.-Am. 1. 243. Cham. in Linnæa, 6. 555. Don, Mill. 3. 216. Torr. & Gray, Fl. 1. 566. Eat. & Wr. 413. Dietr. 2. 1532. Trautv. Pl. Imag. 47, **t. 31.** Seem. Bot. Herald, 31. Hook. f. Arct. Pl. 292. Rothr. Fl. Alask. 446.

S. Fischeri. Seringe, DC. Prodr. 4. 22.

S. bicolor. Sternb. Rev. Suppl. 2. 49, **t. 14.**

S. planifolia. Sternb. in Linnæa, 6. 555.

Evaiezoa serpyllifolia. Raf. Fl. Tellur. 2. 71.

S. sileniflora. Sternb. in Linnæa, 6. 557; Rev. Saxifr. Suppl. 2. 68, **t. 13.** Hook. Fl. Bor.-Am. 1. 245. Don, Mill. 3. 224. Torr. & Gray, Fl. 1. 566. Eat. & Wr. 414. Dietr. 2. 1536. Walp. Rep. 2. 367. Ledeb. Fl. Ross. 2. 224. Seem. Bot. Herald, 31. Rothr. Fl. Alask. 447. Engler, Monogr. Saxifr. 172.

S. cæspitosa, var. *uniflora.* Hook. & Arn. Bot. Beechey, 123.

S. hypnoides, var. *condensata.* Seringe, DC. Prodr. 4. 31, in part.

Evaiezoa sileniflora. Raf. Fl. Tellur. 2. 71.

S. condensata. Dietr. 2. 1537, in part.

S. stellaris. Linn. Spec. 400. See syn. in Sternb. Rev. Saxifr. 11; D. Don, Monogr. Saxifr. 356; Seringe, DC. Prodr. 4. 40; Ledeb. Fl. Ross. 2. 211; Middend. Fl. Taimyr. 43; Engler, Monogr. Saxifr. 130. — Pursh, 310. Greville, Mem. Soc. Wern. 428. Hook. Fl. Bor.-Am. 1. 570. Meyer, Pl. Lab. 68. Torr. & Gray, Fl.

1. 570. Eat. & Wr. 413. Lange, Pl. Groenl. 128. Hook. f. in Journ. Linn. S 5. 83; Arct. Pl. 292 & 329.

Var. **comosa**. Poir. Dict. 6. 680. Seringe, DC. Prodr. 4. 40. Vahl, Fl. Dan. t. 2354. Lange, Pl. Groenl. 128. Gray, Manual, 108. Porter, Fl. Col. 39. E ler, l. c. 133.

S. foliolosa. R. Brown, Parry's 1st Voy. 275 (Regensb. Flora, 7², Beil. 8 Hook. in Parry's 2d Voy. 13; Trans. Linn. Soc. 14. 371; Fl. Bor.-Am. 1. 251. D Mill. 3. 208. Torr. & Gray, Fl. 1. 570. Eat. & Wr. 414. Walp. Rep. 2. 367. Se Bot. Herald, 31. Durand, Pl. Kane. in Journ. Acad. Philad. 1856, 192 (Kane's ped. 2. 455).

S. stellaris, var. *foliolosa*. Trautv. Pl. Imag. 53, t. 35.

S. Texana. Buckley, Proc. Acad. Philad. 1861, 455. Walp. Ann. 7. 899. You Fl. Texas, 288. Engler, Monogr. Saxifr. 283.

S. Tolmiei. Torr. & Gray, Fl. 1. 567. Walp. Rep. 2. 366. Newberry, Pac. Rep. 6. 75. Gray, Proc. Am. Acad. 8. 383; Bot. Calif. 1. 195. Engler, l. c. 1

S. tricuspidata. Retz. Prodr. Fl. Scand. 2 ed. 104. Rottb. Act. Hafn. 10. 4 t. 6. Vahl, Fl. Dan. 6. 5, t. 976. Willd. Spec. 2. 657. Poir. Dict. 6. 698. I soon, 1. 490. Sternb. Rev. Saxifr. 54; Suppl. 2. 62. Pursh, 312. R. Brown, R Voy. 142; Parry's 1st Voy. 274. D. Don, Monogr. Saxifr. 440. Greville, M Soc. Wern. 428. Richard. Frankl. Journ. 9. Spreng. Syst. 2. 368. Seringe, I Prodr. 4. 47. Hook. Fl. Bor.-Am. 1. 254. Don, Mill. 3. 213. Hook. & Arn. B Beechey, 124. Torr. & Gray, Fl. 1. 564. Eat. & Wr. 415. Dietr. 2. 1530. Led Fl. Ross. 2. 209. Seller, Ann. & Mag. Nat. Hist. 16. 172. Seem. Bot. Herald, 3 55. Durand, Pl. Kane. 192 (Kane's Exped. 2. 455); Pl. Hayes, Proc. Acad. Phil 1863, 94. Lange, Pl. Groenl. 128. Hook. f. in Journ. Linn. Soc. 1. 117, 121 & 1 & 5. 83; Arct. Pl. 292. Dickie, Journ. Linn. Soc. 3. 111 & 11. 33. Pl. Bourge 257. Rothr. Fl. Alask. 446. Gray, Manual, 108. Macoun & Gibson, Trans. E Soc. Edinb. 12. 326. Engler, l. c. 217.

Leptasea tricuspidata. Haworth, Enum. Saxifr. 39.

Var. **micrantha**. Sternb. Rev. Suppl. 2. 62. Hook. Fl. Bor.-Am. 1. 254. T & Gray, Fl. 1. 565.

S. Chamissoi. Sternb. Rev. Saxifr. Suppl. 1. 12, t. 10; Linnæa, 6. 556. Spre Syst. 2. 368. Seringe, DC. Prodr. 4. 47. Don, Mill. 3. 213. Dietr. 2. 1530.

S. Virginiensis. Michx. Fl. 1. 269. Lam. Ill. 2. 495, t. 372, f. 4. Poir. D 6. 675. Pursh, 310. Sims, Bot. Mag. t. 1664. D. Don, Monogr. Saxifr. Elliott, 1. 511. Torrey, Fl. U. S. 444; Fl. N. Y. 1. 255. Spreng. Syst. 2. Seringe, DC. Prodr. 4. 39. Hook. Fl. Bor.-Am. 1. 248; Lond. Journ. Bot. 6. Sternb. Rev. Saxifr. Suppl. 2. 45. Beck, Bot. 137. Don, Mill. 3. 217. Dar Fl. Cestr. 270. Torr. & Gray, Fl. 1. 571. Eat. & Wr. 413. Dietr. 2. 1533. Oa Hovey's Mag. 13. 218 (var. *chlorantha*). Benth. Pl. Hartw. 311. Tuckerman, J lyn's Rarities, 70 & 90. Durand, Pl. Pratten. 88. Torrey, Pac. R. Rep. 4 Mex. Bound. 69. Lesqx. Fl. Ark. 361. Chapman, 153. Pl. Bourgeau, 257. G Manual, 168; Proc. Am. Acad. 8. 382; Bot. Calif. 1. 194. Boland. Cat. 11. En Monogr. Saxifr. 143.

S. nivalis. Linn. Spec. 400 & Willd. Spec. 2. 645, in part. Muhl. Cat. 45.

S. Virginica. Persoon, 1. 488. Nutt. Genera, 1. 285. Spreng. Neue Entd 1. 284. Sternb. Rev. Suppl. 1. 5.

S. vernalis. Willd. Hort. Berol. t. 43 (Schrad. Journ. Bot. 1807, 123); En 459. Sternb. Rev. Saxifr. 8. Bigel. Fl. Bost. 177. Hook. Fl. Bor.-Am. 1. 2 Don, Mill. 3. 217. Dietr. 2. 1533.

S. elongata. Sternb. Rev. Saxifr. 9, t. 4. Seringe, DC. Prodr. 4. 39.

Haworth, Misc. Nat. 157.
ı *elonguta* & *pilosa*. Haworth, Enum. Saxifr. 8.
folia, var. *dentata*. Torrey, Pac. R. Rep. 4. 89.

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a; Boykinia aconitifolia.
heterantha, punctata.
lia; Leptarrhena pyroli-

a; cæspitosa.
›unctata.
erpyllifolia.
; leucanthemifolia.
; sileniflora, Spiræa pec-

; Caroliniana.
na; erosa.
lebilis, exilis.
; tricuspidata.
les; bronchialis.
›ucanthemifolia.
ı; sileniflora.
ı; adscendens.
ia; rivularis.
; Lyallii, reflexa.
; cæspitosa.
›ykinia occidentalis.
›xilis.
Virginiensis.
cæspitosa.
; leucanthemifolia.
: Eschscholtzii.
serpyllifolia.
ı; Davurica.
stellaris.
›unctata.
›rosa, punctata.
ica; cæspitosa.
ı; integrifolia.
chrysantha.
›unctata.
›pitosa.
; rivularis.
; sileniflora.
; Virginiensis.
na; rivularis.
›ifolia; bryophora.
na; heterantha.

S. Nelsoniana; punctata, Boykinia Richardsonii.
nitida; bronchialis.
nivalis; integrifolia, Virginiensis.
nuda; erosa.
nutans; Romanzovia Sitchensis.
palustris; Pennsylvanica.
pauciflora; nivalis.
pectinata; Spiræa pectinata.
petiolaris; rivularis.
petræa; adscendens.
pilosa; Virginiensis.
planifolia; serpyllifolia.
plantaginifolia; hieracifolia.
propinqua; Hirculus.
Pseudo-Burseriana; bronchialis.
pubescens; cæspitosa.
punctata; heterantha.
pyrolifolia; Leptarrhena pyrolifolia.
retusa; oppositifolia.
Richardsonii; Boykinia Richardsonii.
rivularis; debilis, nudicaulis.
semipubescens; Pennsylvanica.
serpyllifolia; chrysantha.
setigera; flagellaris.
Sibirica; cernua, exilis.
spathulata; oppositifolia.
spicata; punctata.
stellaris; leucanthemifolia.
Sternbergii; cæspitosa.
Sullivantii; Sullivantia Ohioensis.
tridactylites; adscendens.
umbrosa; punctata.
Unalaschcensis; Davurica.
uniflora; cæspitosa.
vaginata; rivularis.
venosa; cæspitosa.
vernalis; Virginiensis.
Virginiensis; reflexa.
Wolleana; erosa.
——— ?; bronchialis.

NTIA Ohioensis. Torr. & Gray; Gray, Am. Journ. Sci. 1. 42. 22 n. Bot. 1. 228); Chloris Bor.-Am. in Mem. Am. Acad. 3. 38, t. 6 (Re-, 32. 695); Struct. Bot. 424, f. 839–844; Manual, 169. Baillon, Hist. Coulter, Am. Naturalist, 9. 572.

Heuchera (?), *n. sp.* Sullivant, Cat. Pl. Columb. 20.

Saxifraga (?) *Sullivantii.* Torr. & Gray, Fl. 1. 575. Walp. Rep. 2. 367.

TELLIMA affinis. Boland. Cat. 11. Gray, Bot. Calif. 198.

Lithophragma heterophylla. Torrey, Pac. R. Rep. 4. 90; Mex. Bound. 69.

L. affinis. Gray, Proc. Am. Acad. 6. 534. Watson, King's Rep. 5. 449.

T. Bolanderi. Boland. Cat. 11. Gray, Bot. Calif. 1. 198.

Lithophragma Bolanderi. Gray, Proc. Am. Acad. 6. 535. Watson, l. c.

T. Cymbalaria. Walp. Rep. 2. 372. Boland. Cat. 11. Gray, Bot. Calif. 1. 198.

Lithophragma Cymbalaria. Torr. & Gray, Fl. 1. 585. Torrey, Pac. R. Rep. 7. [illegible]; Mex. Bound. 69. Gray, Ives's Rep. 15; Proc. Am. Acad. 6. 535. Watson, King[illegible]'s Rep. 5. 449.

T. grandiflora. R. Brown, Frankl. Journ. Appx. 759. Dougl.; Lindl Bot. Re[illegible]g. 14, t. **1178.** Seringe, DC.Prodr. 4. 49. Bongard, Veg. Sitch. 139. Hook. [illegible]l. 1. 239. Cham. in Linnæa, 6. 559. Don, Mill. 3. 228. Spach, Hist. Veg. 5. [illegible]3. Torr. & Gray, Fl. 1. 583. Eat. & Wr. 448. Ledeb. Fl. Ross. 2. 228. Torrey, P[illegible]c. R. Rep. 4. 90; Bot. Wilkes, 311. Cooper, Pac. R. Rep. 12. 62. Regel, Ind. Se[illegible]n. Petrop. 1866, 100. Rothr. Fl. Alask. 447. Boland. Cat. 11. Baillon, Hist. [illegible]l. 3. 329, f. **368.** Gray, Proc. Am. Acad. 8. 383; Bot. Calif. 1. 197.

Mitella grandiflora. Pursh, 314. Haworth, Enum. Saxifr. 57. Spreng. Sy[illegible]t. 2. 361. Dietr. 2. 1539.

Tiarella alternifolia. Fisch.; Seringe, DC. Prodr. 4. 50. Don, Mill. 3. 229. Dietr. 2. 1538.

T. heterophylla. Hook. & Arn. Bot. Beechey, 346. Walp. Rep. 2. 371. Boland. Cat. 11. Gray, Bot. Calif. 1. 198.

Lithophragma heterophylla. Torr. & Gray, Fl. 1. 584. Benth. Pl. Hartw. 312. Gray, Proc. Am. Acad. 6. 534 & 535. Watson, King's Rep. 5. 449.

T. parviflora. Hook. Fl. Bor.-Am. 1. 239, t. **78, A.** Don, Mill. 3. 228, f. **49.** Hook. & Arn. Bot. Beechey, 346 (as *T. parvifolia*). Eat. & Wr. 448. Walp. Rep. 2. 371. Watson, King's Rep. 5. 94. Porter, Hayd. Rep. 1871, 782; Fl. Col. 40. Coulter, Hayd. Rep. 1872, 766. Gray, Bot. Calif. 1. 198.

Lithophragma parviflora. Nutt. in Journ. Acad. Philad. 7. 26. Torr. & Gray, Fl. 1. 584. Hook. in Lond. Journ. Bot. 6. 232. Cooper, Pac. R. Rep. 12. 62. Gray, Proc. Acad. Philad. 1863, 62; Proc. Am. Acad. 6. 534. Watson, King's Rep. 5. 449. Torrey, Bot. Wilkes, 311.

Pleurendotria parviflora & reniformis. Raf. Fl. Tellur. 2. 73.

Mitella parviflora. Dietr. 2. 1539.

T. tenella. Walp. Rep. 2. 371. Watson, King's Rep. 5. 95. Coulter, Hayd. Rep. 1872, 766. Rothr. Pl. Wheeler, 38. Gray, Bot. Calif. 1. 198.

Lithophragma tenella & glabra. Nutt.; Torr. & Gray, Fl. 1. 584. Gray, Proc. Am. Acad. 6. 533 & 534. Anderson, Cat. Pl. Nev. 121. Watson, King's Rep. 5. 449.

T. glabra. Walp. Rep. 2. 371.

Lithophragma parviflora. Gray, Ives's Rep. 15.

TIARELLA cordifolia. Linn. Spec. 405. Ait. Hort. Kew. 2. 83. Lam. Ill. 2. 495, t. **373,** f. **1.** Willd. Spec. 2. 659; Enum. 462. Michx. Fl. 1. 270. Persoon, 1. 491. Poir. Dict. 7. 657. Sims, Bot. Mag. t. **1589.** Pursh, 313. Haworth, Enum. Saxifr. 58. Torrey, Am. Journ. Sci. 4. 63; Fl. U. S. 445; Fl. N. Y. 1. 258. Bigel. Fl. Bost. 2 ed. 178. Spreng. Syst. 2. 361. Seringe, DC. Prodr. 4. 50. Hook. Fl. Bor.-Am. 1. 238. Beck, Bot. 139. Don, Mill. 3. 229. Spach, Hist. Veg. 5. 65. Torr. & Gray, Fl. 1. 587. Eat. & Wr. 452. Dietr. 2. 1538. Ledeb. Fl. Ross. 2. 229. Chapman, 154. Gray, Manual, 170. Baillon, Hist. Pl. 3. 331, f. **371.**

T. trifoliata. Linn. Spec. 406. Willd. Spec. 2. 659. Pursh, 313. Haworth. Enum. Saxifr. 58. Spreng. Syst. 2. 361. Seringe, DC. Prodr. 4. 50. Hook. Fl. Bor.-Am. 1. 238. Bongard, Veg. Sitch. 139. Don, Mill. 3. 229. Torr. & Gray, Fl. 1. 588. Eat. & Wr. 452. Dietr. 2. 1538. Cooper, Pac. R. Rep. 12. 62. Rothr. Fl. Alask. 447. Gray, Proc. Am. Acad. 8. 383; Bot. Calif. 1. 199. Torrey, Bot. Wilkes, 312.

T. laciniata. Hook. Fl. Bor.-Am. 1. 239, t. **77.** Don, Mill. 3. 229. Torr. & Gray, Fl. 1. 588. Eat. & Wr. 452. Dietr. 2. 1538. Walp. Rep. 2. 372.

T. stenopetala. Presl, Rel. Haenk. 2. 55. Don, Mill. 3. 229. Dietr. 2. 1538. Walp. Rep. 2. 372.

Blondia trifoliata. Raf. Fl. Tellur. 2. 75.

Petalosteira laciniata. Raf. l. c. 2. 74.

T. unifoliata. Hook. Fl. Bor.-Am. 1. 238, t. **81.** Don, Mill. 3. 229. Torr. & Gray, Fl. 1. 587. Eat. & Wr. 452. Dietr. 2. 1538. Walp. Rep. 2. 372. Newberry, Pac. R. Rep. 6. 74. Boland. Cat. 11. Gray, Proc. Am. Acad. 8. 383; Bot. Calif. 1. 199.

Heuchera longipetala. Moç. Icon. Fl. Mex. ined. t. **423.** Seringe, DC. Prodr. 4. 52. Hook. Fl. Bor.-Am. 1. 237. Don, Mill. 3. 231.

Petalosteira unifolia. Raf. Fl. Tellur. 2. 74.

Var. **procera.** Gray, Bot. Calif. 1. 199.

Heuchera Californica. Kellogg, Proc. Calif. Acad. 5. 53.

T. alternifolia; Tellima grandiflora.
biternata; Astilbe decandra.
bracteata; Heuchera bracteata.
colorans; Heuchera glabra.
T. laciniata; trifoliata.
Menziesii; Tolmiea Menziesii.
stenopetala; trifoliata.
unifolia; Mitella nuda.

TOLMIEA Menziesii. Torr. & Gray, Fl. 1. 582. Cooper, Pac. R. Rep. 12. 62. Boland. Cat. 12. Baillon, Hist. Pl. 3. 334, f. **373.** Torrey, Bot. Wilkes, 311. Gray, Bot. Calif. 1. 197.

Tiarella Menziesii. Pursh, 313. Poir. Suppl. 5. 308. Haworth, Enum. Saxifr. 58. Spreng. Syst. 2. 361. Seringe, DC. Prodr. 4. 50. Hook. Fl. Bor.-Am. 1. 238. Don, Mill. 3. 229. Eat. & Wr. 452. Dietr. 2. 1538.

Heuchera Menziesii. Hook. Fl. Bor.-Am. 1. 237, t. **80.** Don, Mill. 3. 230.

Leptaxis Menziesii. Raf. Fl. Tellur. 2. 75.

WHIPPLEA modesta. Torrey, Pac. R. Rep. 4. 90, t. **7.** Boland. in Proc. Calif. Acad. 3. 80; Cat. 12. Baillon, Hist. Pl. 3. 350. Gray, Bot. Calif. 1. 203.

W. Utahensis. Watson, Am. Naturalist, 7. 300. Gray, Bot. Calif. 1. 203.

CRASSULACEÆ.

COTYLEDON cæspitosa. Haworth, Misc. Nat. 180; Syn. Pl. Succ. 107. DC. Rar. Pl. Genèv. 50, t. **14.** Baker, Refug. Bot. 1, t. **69.** Brew. & Wats. Bot. Calif. 1. 212.

Sedum Cotyledon. Jacquin, Eclog. 1, t. **17.** Reichenb. Hort. Bot. 2. 10, t. **125.**

C. linguiformis. Ait. f. Hort. Kew. 3. 109. Poir. Suppl. 5. 631.

C. reflexa. Willd. Enum. Suppl. 24.

Echeveria cæspitosa. DC. Prodr. 3. 401. Don, Mill. 3. 113. Torr. & Gray, Fl. 1. 560. Schlecht. in Hort. Hal. 1853, fasc. 3. 18. Walp. Ann. 5. 12. Ill. Hort. 10, Misc. 79.

? *Echeveria campanulata.* Kunze, Del. Sem. h. Lips. 7.

Echeveria lanceolata. Torrey, Bot. Wilkes, 307.

C. edulis. Brewer; Brew. & Wats. Bot. Calif. 1. 211.

Sedum edule. Nutt.; Torr. & Gray, Fl. 1. 560. Dietr. 2. 1621. Walp. Rep. 2. 263. Torrey, Mex. Bound. 68.

C. farinosa. Baker, Refug. Bot. 1, t. **71.** Brew. & Wats. Bot. Calif. 1. 211.

Echeveria farinosa. Lindl. in Journ. Hort. Soc. 4. 292. Walp. Ann. 2. 669. Gray, Proc. Am. Acad. 5. 158 ? Ill. Hort. 10, Misc. 79.

Echeveria lanceolata. Torrey, Pac. R. Rep. 4. 89, in part. Newberry, Pac. R. Rep. 6. 74 ? Boland. Cat. 12 ?

Echeveria laxa. Gray, Proc. Am. Acad. 5. 158, in part.

C. Grayii. Baker, Refug. Bot., under t. 71. (Northern Mexico).

Echeveria cæspitosa ? Engelm. in Wisliz. Rep. 22.

Echeveria paniculata. Gray, Pl. Wright. 1. 76. Walp. Ann. 5. 12. Ill. Hort. 10, Misc. 81.

C. lanceolata. Benth. & Hook. Gen. Pl. 1. 659. Brew. & Wats. Bot. Calif. 1. 211.

Echeveria lanceolata. Nutt.; Torr. & Gray, Fl. 1. 561. Walp. Rep. 2. 260; Ann. 5. 12. Schlecht. in Hort. Hal. 1853, fasc. 3. 18. Torrey, Mex. Bound. 69, in part, t. **24.** Ill. Hort. 10, Misc. 80. Referred doubtfully to *C. cæspitosa* by Baker, l. c. under t. 69.

C. laxa. Benth. & Hook. Gen. Pl. 1. 659. Brew. & Wats. Bot. Calif. 1. 212.

Echeveria laxa. Lindl. in Journ. Hort. Soc. 4. 292. Walp. Ann. 2. 669 & 5. 12. Schlecht. l. c. Ill. Hort. 10, Misc. 81.

C. Californica. Baker, Refug. Bot. 1, t. **70.**

C. Nevadensis. Watson, Bot. Calif. 1. 212.

Echeveria lanceolata. Torrey, Pac. R. Rep. 4. 89, in part.

Echeveria laxa. Gray, Proc. Am. Acad 5. 158, in part.

C. Peacockii. Baker, Gard. Chronicle, 1874, 2. 258.

C. pulverulenta. Baker, Refug. Bot. 1, t. **66.** Brew. & Wats. Bot. Calif. 1. 211.

Echeveria pulverulenta. Nutt.; Torr. & Gray, Fl. 1. 560. Walp. Rep. 2. 259; Ann. 5. 12. Schlecht. in Hort. Hal. 1853, fasc. 3. 18. Torrey, Mex. Bound. 68 ? Ill. Hort. 10, Misc. 82.

C. strictiflora. Baker, Refug. Bot. 1, under t. 62.

Echeveria strictiflora. Gray, Pl. Wright. 1. 76. Walp. Ann. 5. 12. Torrey, Mex. Bound. 68. Ill. Hort. 10, Misc. 83.

DIAMORPHA pusilla. Nutt. Genera, 1. 293. Elliott, 1. 530. Spreng. Syst. 2. 260. DC. Prodr. 3. 414; Mem. Crass. 42, t. **1, f. 9** (fruit). Don, Mill. 3. 125. Torr. & Gray, Fl. 1. 561, excl. syn. Michx. Dietr. 2. 1328. Chapman, 150. Wood, Cl.-Book, 368; Bot. & Fl. 119. Gray, Proc. Am. Acad. 11. 71.

Tillæa (?) *cymosa.* Nutt. Genera, 1. 110, & Appx.

PENTHORUM sedoides. Linn. Spec. 432. Hill, Veg. Syst. 13, t. **6, f. 1.** Walter, 142. Gaertn. Fruct. 1. 312, t. **65.** Ait. Hort. Kew. 2. 112. Lam. Ill. 2. 506, t. **390.** Willd. Spec. 2. 770. Michx. Fl. 1. 278. Poir. Dict. 5. **161.** Persoon, 1. 513. Haworth, Syn. Fl. Succ. 120. Pursh, 323. Bigel. Fl. Bost. 184. Elliott, 1. 528. Torrey, Fl. U. S. 463; Fl. N. Y. 1. 253. Spreng. Syst. 2. 432. DC. Prodr. 3. 414; Mem. Crass. 43, t. **1, f. 8** (fruit). Hook. Fl. Bor.-Am. 1. 229; Comp.

Bot. Mag. 1. 46. Beck, Bot. 133. Don, Mill. 3. 125. Darling. Fl. Cestr. 281. Torr. & Gray, Fl. 1. 562. Eat. & Wr. 347. Dietr. 2. 1627. Gray, Pl. Fendl. 54; Manual, 171. Engelm. Pl. Upp. Miss. 193. Lesqx. Fl. Ark. 361. Chapman, 151. Baillon, Hist. Pl. 3. 336, **f. 376, 377.**

SEDUM ACRE, Linn. Gray, Manual, 172. Wood, Cl.-Book, 368.

S. annuum. Linn. Spec. 432, in part. See syn. in Ledeb. Fl. Ross. 2. 186; Koch, Fl. Germ. 3 ed. 223. — Lange, Pl. Groenl. 127. Hook. f. Arct. Pl. 291.

S. debile. Watson, King's Rep. 5. 102. Porter, Hayd. Rep. 1871, 483. Coulter, same, 1872, 766. Brew. & Wats. Bot. Calif. 1. 210.

S. Douglasii. Hook. Fl. Bor.-Am. 1. 228; Lond. Journ. Bot. 6. 231. Don, Mill. 3. 114. Torr. & Gray, Fl. 1. 559. Walp. Rep. 2. 262. Porter, Hayd. Rep. 1871, 483. Torrey, Bot. Wilkes, 308. Brew. & Wats. Bot. Calif. 1. 210.

S. Nevii. Gray, Mem. Am. Acad. 6. 373; Manual, 172. Chapman, 150.

S. obtusatum. Gray, Proc. Am. Acad. 7. 342. Brew. & Wats. Bot. Calif. 1. 209.

S. Oreganum. Nutt.; Torr. & Gray, Fl. 1. 559. Walp. Rep. 2. 262. Dietr. 2. 1618. Cooper, Pac. R. Rep. 12. 61. Brew. & Wats. Bot. Calif. 1. 209.

? *S. sparsiflorum.* Torrey, Bot. Wilkes, 307.

S. pulchellum. Michx. Fl. 1. 277. Persoon, 1. 512. Pursh, 323. Poir. Suppl. 4. 210. Nutt. Genera, 1. 292. Elliott, 1. 529. Torr. & Gray, Fl. 1. 559. Eat. & Wr. 421. Dietr. 2. 1620. Chapman, 150. Gray, Manual, 172. Hook. f. Bot. Mag. **t. 6223.**

S. pusillum. Pursh, 323.

S. pulchrum. DC. Prodr. 3. 403. Don, Mill. 3. 116.

S. pumilum. Benth. Pl. Hartw. 310. Walp. Ann. 2. 671. Brew. & Wats. l. c.

S. pusillum. Michx. Fl. 1. 276. Persoon, 1. 513. Poir. Suppl. 4. 210. Eat. & Wr. 421. Gray, Proc. Am. Acad. 11. 71.

S. rhodanthum. Gray, Am. Journ. Sci. 2. 33. 405; Proc. Acad. Philad. 1863, 62 (Bull. Soc. Bot. France, 9. 679). Walp. Ann. 7. 921. Porter, Hayd. Rep. 1870, 475; 1871, 483; Fl. Col. 43. Watson, King's Rep. 5. 101. Coulter, Hayd. Rep. 1872, 766. Rothr. Pl. Wheeler, 39.

S. Rhodiola. DC. Fl. Franc. 3 ed. 4. 386; Pl. Grass. **t. 143**; Prodr. 3. 401. See syn. in Ledeb. Fl. Ross. 2. 179 (& under *S. elongatum*, 178); Middend. Fl. Taimyr. 46; Regel & Tiling, Fl. Ajan. 88. — Torrey, Ann. Lyc. N. Y. 2. 206; Frem. Rep. 90. Hook. Fl. Bor.-Am. 1. 227. Hook. & Arn. Bot. Beechey, 123. Torr. & Gray, Fl. 1. 558. Eat. & Wr. 421. Gray, Pl. Fendl. 54; Am. Journ. Sci. 2. 33. 405; Proc. Acad. Philad. 1863, 62; Manual, 172. Seem. Bot. Herald, 30. Durand, Pl. Kane. in Journ. Acad. Philad. 1856, 191 (Kane's Exp. 2. 454). Lange, Pl. Groenl. 127. Hook. f. Arct. Pl. 291 & 328. Pl. Bourgeau, 257. Rothr. Fl. Alask. 446; Pl. Wheeler, 39. Matthew, Pl. Acad. 15. Porter, Hayd. Rep. 1870, 475; 1871, 483; Fl. Col. 42. Watson, King's Rep. 5. 101. Coulter, Hayd. Rep. 1872, 766. Brew. & Wats. Bot. Calif. 1. 209.

Rhodiola rosea. Linn. Spec. 1035. Schrank, Pfl. Lab. 24. Meyer, Pl. Lab. 70. Hook. f. in Journ. Linn. Soc. 5. 83.

S. elongatum. Ledeb. Fl. Alt. 2. 193; Fl. Ross. 2. 178.

S. spathulifolium. Hook. Fl. Bor.-Am. 1. 227. Don, Mill. 3. 114. Torr. & Gray, Fl. 1. 559. Dietr. 2. 1618. Walp. Rep. 2. 263. Torrey, Pac. R. Rep. 4. 89; Mex. Bound. 68; Bot. Wilkes, 307. Newberry, Pac. R. Rep. 6. 74. Cooper, same, 12. 61. Boland. Cat. 12. Regel, Gart. Fl. 1872, 297, **t. 741, b.** Gray, Proc. Am. Acad. 8. 383. Brew. & Wats. Bot. Calif. 1. 209. Gard. Chronicle, 1876, 1. 820, **f. 146.**

S. stenopetalum. Pursh, 324. Poir. Suppl. 5. 751. James, Cat. 181. Spreng. Syst. 2. 435. Torrey, Ann. Lyc. N. Y. 2. 205; Bot. Wilkes, 308. DC. Prodr. 3. 408. Hook. Fl. Bor.-Am. 1. 228; Lond. Journ. Bot. 6. 230. Don, Mill. 3. 120. Nutt. in Journ. Acad. Philad. 7. 23. Torr. & Gray, Fl. 1. 560. Eat. & Wr. 421. Dietr. 2. 1622. Engelm. Pl. Upp. Miss. 193. Newberry, Pac. R. Rep. 6. 74. Gray, Am. Journ. Sci. 2. 33. 405; Proc. Acad. Philad. 1863, 62. Pl. Bourgeau, 257. Porter, Hayd. Rep. 1870, 475; 1871, 483; Fl. Col. 43. Watson, King's Rep. 5. 101. Regel, Gart. Fl. 1872, 297, t. **741, a.** Coulter, Hayd. Rep. 1872, 766. Rothr. Pl. Wheeler, 39. Brew. & Wats. Bot. Calif. 1. 210.

S. lanceolatum. Torrey, Ann. Lyc. N. Y. 2. 205. Don, Mill. 3. 115. Eat. & Wr. 421.

? *S. subclavatum.* Haworth, Phil. Mag. 1831, 414. Don, Mill. 3. 120. Dietr. 2. 1622.

S. telephioides. Michx. Fl. 1. 277. Persoon, 1. 511. Pursh, 324. Poir. Suppl. 4. 206. Elliott, 1. 529. Torrey, Fl. U. S. 464; Fl. N. Y. 1. 252. DC. Prodr. 3. 402. Beck, Bot. 133. Don, Mill. 3. 116. Torr. & Gray, Fl. 1. 558. Eat. & Wr. 421. Dietr. 2. 1620. Chapman, 150. Gray, Manual, 172.

? *S. hæmatodes.* Mill.; DC. Prodr. 3. 404. Don, Mill. 3. 116. Torr. & Gray, Fl. 1. 560. Dietr. 2. 1619.

Anacampseros telephioides. Haworth, Syn. Pl. Succ. 112.

S. Telephium, Linn. Torrey, Fl. N. Y. 1. 252. Wood, Cl.-Book, 368. Gray, Manual, 172.

S. ternatum. Michx. Fl. 1. 277. Persoon, 1. 512. Ait. f. Hort. Kew. 3. 112. Pursh, 324. Ker, Bot. Reg. t. **142.** Sims, Bot. Mag. t. **1977.** Elliott, 1. 529. Torrey, Fl. U. S. 463. Spreng. Syst. 2. 434. DC. Prodr. 3. 403. Hook. Fl. Bor.-Am. 1. 228. Beck, Bot. 133. Don, Mill. 3. 115. Darling. Fl. Cestr. 482. Torr. & Gray, Fl. 1. 559. Eat. & Wr. 420. Dietr. 2. 1618. Lesqx. Fl. Ark. 361. Chapman, 150. Gray, Manual, 172.

S. portulacoides. Muhl.; Willd. Enum. 1. 484; Cat. 46. Poir. Suppl. 4. 206.

Anacampseros ternata. Haworth, Syn. Pl. Succ. 114.

S. deficiens. Donn, Hort. Cantab. 6 ed. 126.

S. Torreyi. Don, Mill. 3. 121. Eat. & Wr. 421. Dietr. 2. 1623. Walp. Rep. 2. 263.

S. —— ?, *nov. sp.* Torrey, Ann. Lyc. N. Y. 2. 205.

S. sparsiflorum. Nutt.; Torr. & Gray, Fl. 1. 559. Dietr. 2. 1618. Walp. Rep. 2. 262. Engelm. & Gray, Pl. Lindh. 38. Gray, Pl. Lindh. 209; Hall's Pl. Texas, 5.

S. variegatum. Watson, Proc. Am. Acad. 11. 137. Brew. & Wats. Bot. Calif. 1. 210.

S. villosum. Linn. Spec. 432. Credited to Greenland by Lange, Pl. Groenl. 1. and Hook. f. in Arct. Pl. 291.

S. Wrightii. Gray, Pl. Wright. 1. 76 & 2. 63. Torrey, Pac. R. Rep. 4. 89; Mex. Bound. 68.

SEMPERVIVUM tectorum, Linn. Brew. & Wats. Bot. Calif. 1. 208.

TILLÆA angustifolia. Nutt.; Torr. & Gray, Fl. 1. 558. Walp. Rep. 2. 252. Watson, King's Rep. 5. 101. Gray, Proc. Am. Acad. 8. 383. Torrey, Bot. Wilkes, 308. Rothr. Pl. Wheeler, 39. Brew. & Wats. Bot. Calif. 1. 209.

Var. (?) **Bolanderi.** Watson, Bot. Calif. 1. 209.

T. Drummondii. Torr. & Gray, Fl. 1. 558. Walp. Rep. 2. 252. Gray, Hall's Pl. Texas, 9. Brandegee, Fl. S. W. Colorado, 236.

linima. Miers, Trav. Chil. 2. 530. Don, Mill. 3. 98. Hook. & Arn. Bot. 3. 338. Torr. & Gray, Fl. 1. 557 & 697. Walp. Rep. 2. 252. Gay, Fl. Chil.). **Watson**, Proc. Am. Acad. 11. 115. Brew. & Wats. Bot. Calif. 1. 208.
erecta. **Hook.** & Arn. Bot. Beechey, 24.
muscosa. **Gay**, Fl. Chil. 2. 520.

subsimplex. Watson, Bot. Calif. 1. 208; Proc. Am. Acad. 11. 115.
leptopetala. Benth. Pl. Hartw. 310. Walp. Ann. 2. 666. Boland. Cat. 12.

mplex. Nutt. in Journ. Acad. Philad. 1. 114 (Litt.-Ber. zu Linnæa, 1828, Genera, Appx. Barton, Comp. Fl. Philad. 1. 94. Torrey, Compend. 87; Y. 1. 251. DC. Prodr. 3. 381. Roem. & Schult. Syst. 3². 345. Beck, Bot. Don, Mill. 3. 98. Torr. & Gray, Fl. 1. 557. Gray, Manual, 171.
ascendens. Eaton, Manual, 5 ed. 419. Eat. & Wr. 453.

DROSERACEÆ.

NÆA muscipula. Ellis; Linn. Mant. 2. 238 (Nov. Act. Ups. 1. 98, **t. 8**). ber, Ellis Epist. t. Hill, Decade, **t. 5**. Houttuyn, Pfl. Syst. 6. 497, **t. 50, B.** er, 144. Lam. Dict. 2. 283; Ill. 2. 487, **t. 362**. Ait. Hort. Kew. 2. 63. Willd. 2. 574. Michx. Fl. 1. 267. Ventenat, Hort. Malm. 1. 5, **t. 29** (Koenig, Ann. l. 389). Sims, Bot. Mag. **t. 785**. Persoon, 1. 409. Pursh, 304. Turpin, Sci. Nat. 13. 284, **t. 185**. Nutt. Genera, 1. 284. Tratt. Thesaur. Bot. **t. 2.** Bot. Cab. **t. 48**. Elliott, 1. 479. Loisel. Herb. Amat. 5, **t. 349**. DC. Prodr.). Spreng. Syst. 2. 330. Don, Mill. 1. 327. Paxton, Mag. Bot. 1, **t. 60.** n, Am. Journ. Sci. 25. 75 & 26. 315. Curtis, Journ. Bost. Soc. Nat. Hist.). Reichenb. Fl. Exot. 5. 35, **t. 340**. Torr. & Gray, Fl. 1. 147. Eat. & Wr. Dietr. 2. 1470. Fl. Serres, 3. 280, t. Gray, Genera Ill. 1. 198, **t. 84, 85**; al, 83. Burnet, Encyc. Pl. 1, **t. 109**. Lindl. Veg. Kingd. 433, **f. 302.** tzl. Icon. **t. 189, f. 23–31**. Chapman, 37. Maout & Decaisne, Trait. Bot. **ga.** Wood, Bot. & Fl. 51.
sensitiva. Salisb. Prodr. 321.
sessiliflora. Raf. Atl. Journ. 2. 78; Med. Bot. 2. 217; New. Fl. 4. 17. Walp. l. 230.
uniflora. **Raf.** Atl. Journ. 2. 78. Walp. Rep. 1. 230.
corymbosa. **Raf.** Med. Bot. 2. 217.

SERA Anglica. Hudson, Fl. Angl. 135. See syn., under *D. longifolia*, in Nov. Fl. Suec. 2 ed. 82; Ledeb. Fl. Ross. 1. 261; Regel, Fl. Ost-Sib. 1. 258. — Fl. Bor.-Am. 1. 81. Torr. & Gray, Fl. 1. 146. Eat. & Wr. 230. Planchon, Sci. Nat. 3. 9. 200. Brew. & Wats. Bot. Calif. 1. 213.
longifolia. Linn. Spec. 282, in part. Hook. f. Arct. Pl. 286.

evifolia. Pursh, 211. Poir. Suppl. 4. 717. Nutt. Genera, 1. 141. Roem. ult. Syst. 6. 762. DC. Prodr. 1. 317. Spreng. Syst. 1. 955. Don, Mill. . Torr. & Gray, Fl. 1. 146, excl. var. *β*. Eat. & Wr. 230. Dietr. 2. 1018. m. & Gray, Pl. Lindh. 4. Planch. in Ann. Sci. Nat. 3. 9. 191. Chapman, 37. , Cl.-Book, 251; Bot. & Fl. 51. Gray, Hall's Pl. Texas, 5.

pillaris. Poir. Dict. 6. 299. DC. Prodr. 1. 318. Don, Mill. 1. 344. Dietr. 3. Planch. l. c. 194. Chapman, 37. Wood, Bot. & Fl. 51. Gray, l. c.
brevifolia, var. *major.* Hook. Journ. Bot. 1. 194. Torr. & Gray, Fl. 1. 146.
rotundifolia, var. *capillaris.* Eat. & Wr. 230.
minor. Wood, Cl.-Book, 251.

D. filiformis. Raf. in Med. Rep. 5. 360; Desv. Journ. Bot. 1. 227. Pursh, 211. Poir. Suppl. 4. 717 & 718. Nutt. Genera, 1. 142. Roem. & Schult. Syst. 6. 763. DC. Prodr. 1. 318. Torrey, Fl. U. S. 332; Fl. N. Y. 1. 82, **t. 10.** Spreng. Syst. 1. 955. Don, Mill. 1. 345. Beck, Bot. 42. Graham, Edinb. Phil. Journ. 1830, July. Hook. Bot. Mag. **t. 3540.** Torr. & Gray, Fl. 1. 147. Eat. & Wr. 230. Dietr. 2. 1018. Gray, Gen. Ill. 1. 194, **t. 83**; Manual, 83. Planch. l. c. 201.

D. tenuifolia. Willd. Enum. 340. Poir. Suppl. 4. 717. Muhl. Cat. 33. Roem. & Schult. Syst. 6. 763. Bigel. Fl. Bost. 2 ed. 124.

D. intermedia. Drev. & Hayne, Abbild. Deutsch. Gewach. 1. 18, **t. 3, B**; Fl. Europ. 43, **t. 75, B.** See syn. in Koch, Fl. Germ. 3 ed. 78; Planch, l. c. 198.—Hook. f. Arct. Pl. 286. Regel, Fl. Ost-Sib. 1. 259. Brew. & Wats. Bot. Calif. 1. 213.

D. longifolia. Linn. Spec. 282, in part.

Var. **Americana.** DC. Prodr. 1. 318. Don, Mill. 1. 345. Griseb. Fl. Brit. W. Ind. 27. Eichler, Mart. Fl. Bras. 14^2. 392, **t. 90, f. 2.**

D. longifolia. Michx. Fl. 1. 186. Poir. Dict. 6. 298. Pursh, 211. Nutt. Genera, 1. 141. Roem. & Schult. Syst. 6. 761. Elliott, 1. 376. DC. Prodr. 1. 318. Bigel. Fl. Bost. 2 ed. 123. Torrey, Fl. U. S. 331; Fl. N. Y. 1. 82. Spreng. Syst. 1. 955. Don, Mill. 1. 345. Beck, Bot. 42. Hook. in Lond. Journ. Bot. 1. 194. Torr. & Gray, Fl. 1. 146. Eat. & Wr. 230. Dietr. 2. 1018. Chapman, 37. Gray, Manual, 82.

D. Americana. Willd. Enum. 340. Muhl. Cat. 33. Poir. Suppl. 4. 718. Roem. & Schult. Syst. 6. 765. Bertol. Bol. Misc. 10. 32.

D. foliosa. Elliott, 1. 376 (Spreng. Neue Entdeck. 2. 195). DC. Prodr. 1. 319. Eaton, Man. 5 ed. 205. Don, Mill. 1. 346. Dietr. 2. 1019.

D. intermedia, var. *elatior.* Planch. l. c. 199.

D. linearis. Goldie, Edinb. Phil. Journ. 1822, 325. Hook. Fl. Bor.-Am. 1. 82, **t. 27, A.** Torr. & Gray, Fl. 1. 146. Walp. Rep. 1. 227. Eat. & Wr. 230. Planch. l. c. 200. Gray, Manual, 82. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 317.

D. rotundifolia. Linn. Spec. 282. See syn. in Ledeb. Fl. Ross. 1. 261; Regel, Fl. Ost-Sib. 1. 257; Pritzel, Ind. Ic. Bot. 1. 383 & 2. 111. — Walter, 118. Willd. Spec. 1. 1543. Michx. Fl. 1. 186. Poir. Dict. 6. 299. Persoon, 1. 336. Pursh, 210. Bigel. Fl. Bost. 123. Nutt. Genera, 1. 141. Elliott, 1. 375. Roem. & Schult. Syst. 6. 760. DC. Prodr. 1. 318. Torrey, Fl. U. S. 331; Fl. N. Y. 1. 81. Chan. & Schlecht. in Linnæa, 1. 547. Hook. Fl. Bor.-Am. 1. 81. Bongard, Veg. Sitch. 126. Beck, Bot. 42. Schlecht. Fl. Lab. in Linnæa, 10. 102. Darling. Fl. Cest. 211. Torr. & Gray, Fl. 1. 146. Eat. & Wr. 229. Planchon, l. c. 198. Parr. Pl. Minn. 609. Cooper, Pac. R. Rep. 12. 56. Chapman, 37. Hook. f. Arct. 286. Rothr. Fl. Alask. 444. Gray, Manual, 82. Millington, Am. Naturalist, 2. 107. Treat, Am. Journ. Sci. 3. 2. 463; Am. Naturalist, 7. 705. Brew. & Wats. Bot. Calif. 1. 213.

HAMAMELACEÆ.

FOTHERGILLA Gardeni. Linn.; Murr. Syst. Veg. 418. Marsh. Arbust. 42. Schkuhr, Handb. 2. 79, **t. 143.** Jacq. Icon. Rar. 1, **t. 100**; Coll. 1. 79. Michx. 1. 313. Lodd. Bot. Cab. **t. 1507.**

Hamamelis ——? Linn. Syst. Nat. 12 ed. (1767), 2. 129, under *H. Virginiana.*

Hamamelis Virginiana Carolina. Linn. Mant. 2. 333. Willd. Spec. 1. 701.

Fothergilla alnifolia. Linn. f. Suppl. 207. Lam. Dict. 2. 523; Ill. 3. 30, t. **480.** Ait. Hort. Kew. 2. 241. Willd. Arb. 113; Spec. 2. 1224; Enum. 573. Persoon, 2. 81. Loisel. in Nouv. Duham. 4. 103, t. **26.** Sims, Bot. Mag. t. **1341, 1342.** Pursh, 335. Smith, Rees Cycl. 17. Nutt. Genera, 1. 304. Turpin, Dict. Sci. Nat. 17. 271, t. **199.** Elliott, 1. 547. Guimp. Otto & Hayne, t. **16.** Spreng. Syst. 2. 612. Lodd. Bot. Cab. t. **1576.** DC. Prodr. 4. 270. Don, Mill. 3. 397. Spach, Hist. Veg. 8. 84. Torr. & Gray, Fl. 1. 597. Eat. & Wr. 246. Dietr. 3. 271. Loud. Arb. 2. 1008, f. **758, 759.** Agardh, Theor. Syst. t. **13,** f. **5, 6.** Curtis, Bot. N. Car. 106. Chapman, 157. Gray, Manual, 173. Baillon, Adansonia, 10. 127; Hist. Pl. 3. 395, f. **468–470.**

? *Hamamelis monoica.* Walter, 255. Gmel. Syst. 1. 282.

F. major. Lodd. Bot. Cab. t. **1520.**

? *Trilopus æstivalis.* Raf. New Fl. 3. 16.

HAMAMELIS Virginiana. Linn. Spec. 124. Wangenh. Amer. 89, t. **29,** f. **62.** Marsh. Arbust. 58. Lam. Dict. 3. 68; Ill. 1. 350, t. **88.** Ait. Hort. Kew. 1. 167. Schkuhr, Handb. 1. 88, t. **27.** Willd. Spec. 1. 701; Enum. 171. Michx. Fl. 1. 100. Persoon, 1. 150. Pursh, 116. Bigel. Fl. Bost. 61. Nutt. Genera, 1. 107. Nouv. Duham. 7, t. **60.** Elliott, 1. 219. Roem. & Schult. Syst. 3. 483. Lodd. Bot. Cab. t. **598.** James, Long's Exp. 1. 54 & 3. 149. Barton, Fl. N. Am. 3. 21, t. **78.** Torrey, Fl. U. S. 192; Fl. N. Y. 1. 260. Guimp. Otto & Hayne, t. **75.** Spreng. Syst. 1. 491. Raf. Med. Bot. 1. 227, f. **45.** DC. Prodr. 4. 268. Hook. Fl. Bor.-Am. 1. 275; Comp. Bot. Mag. 1. 48. Don, Mill. 3. 396, f. **69.** Beck, Bot. 152. Darling. Fl. Cestr. 114. Spach, Hist. Veg. 8. 79. Dietr. 1. 550. Torr. & Gray, Fl. 1. 597. Eat. & Wr. 260. Loud. Arb. 2. 1007, f. **756, 757.** Emerson, Trees of Mass. 416, & 2 ed. 2. 472, t. Engelm. Pl. Upp. Miss. 193. Agardh, Theor. Syst. t. **13,** f. **7.** Schnitzl. Icon. t. **167,** f. **18–25, 27–29.** Curtis, Bot. N. Car. 105. Lesqx. Fl. Ark. 362. Chapman, 157. Gray, Manual, 173; Am. Journ. Sci. 2. 24. 438 & 3. 5. 144. Baill. ll. cc. 123, & 389, f. **462–464.** Maout & Decne. 258, **figs.**

H. dioica & androgyna? Walter, 255. Gmelin, Syst. Veg. 1. 281 & 282.

H. corylifolia. Moench, Meth. 273.

H. macrophylla. Pursh, 116. Poir. Suppl. 5. 698. Elliott, 1. 220. Roem. & Schult. Syst. 3. 483. Raf. Med. Bot. 1. 230. Don, Mill. 3. 396. Eat. & Wr. 261.

Trilopus Virginiana, nigra, rotundifolia & dentata. Raf. New Fl. 3. 15–17.

Var. parvifolia. Nutt. Genera, 1. 107. Torrey, Fl. U. S. 193. Don, Mill. 3. 396. Beck, Bot. 152. Torr. & Gray, Fl. 1. 597.

H. parvifolia. Raf. Med. Bot. 1. 230. *Trilopus parvifolia.* Raf. New Fl. 3. 17.

LIQUIDAMBAR Styraciflua. Linn. Spec. 999. Marsh. Arbust. 77. Walter, 237. Lam. Dict. 3. 533; Ill. 3. 367, t. **783.** Ait. Hort. Kew. 3. 365. Gaertn. Fruct. 2, t. **90.** Moench, Meth. 340. Willd. Spec. 4. 475; Enum. 985. Michx. Fl. 2. 202. Persoon, 2. 573. Schkuhr, Handb. 3. 275, t. **307.** Loisel. Nouv. Duham. 2. **42,** t. **10,** & 7. 207, t. **60.** Michx. f. Arb. Am. 3. 194, t. **4.** Pursh, 635. Nutt. Genera, 2. 219; Fl. Ark. 168. Nees, Pl. Offic. t. **95.** Elliott, 2. 621. Spreng. Syst. 3. 864. HBK. Nov. Gen. 7. 273. Audubon, Birds, t. **45.** Torrey, Compend. 357; Fl. N. Y. 2. 217. Beck, Bot. 326. Hook. Comp. Bot. Mag. 2. 64. Eat. & Wr. 302. Spach, Hist. Veg. 10. 84. Loud. Arb. 4. 2049, f. **1961,** & t. **353, 354.** Broomfield, Lond. Journ. Bot. 7. 144. Schnitzl. Icon. t. **98.** Seem. Bot. Herald, 346. Curtis, Bot. N. Car. 77. Lesqx. Fl. Ark. 362. Chapman, 157. A. DC. Prodr. 16². 157. Oliver, Hook. f. Icon. 11. 13. Gray, Manual, 174. Maout & Decaisne, 520, **figs.** Baillon, Hist. Pl. 3. 397, f. **471–474.** Ridgway, Am. Naturalist, 6. 664.

L. styraciflua, var. *Mexicana.* Oersted, Am. Centr. 16, t. **11.**

L. macrophylla. Oersted, Am. Centr. 16, t. **10,** fide A. DC. l. c.

HALORAGEÆ.

HIPPURIS maritima. Hellenius, Diss. Hipp. in Usteri, Del. Opusc. 1. 11, t. 1. See syn. in DC. Prodr. 3. 72; Ledeb. Fl. Ross. 2. 120. [Hornem. Fl. Dan. 8 – 3, t. 1261. Reichenb. Icon. Bot. t. 86, f. 182. Retz, Obs. Bot. 3. 7, t. 1.]—Cham. in Linnæa, 4. 507, under *H. vulgaris*. Hook. Fl. Bor.-Am. 1. 218. Hook. & Arn. B[illegible]ot. Beechey, 123. Torr. & Gray, Fl. 1. 531. Eat. & Wr. 271. Seem. Bot. Herald, [illegible]30. Rothr. Fl. Alask. 446. Made a variety of *H. vulgaris* by Wahlenberg, Fries, Ko[illegible]ch, & Hook. f.

H. tetraphylla. Linn. f. Suppl. 81. Richard. Frankl. Journ. Appx. 2.

H. vulgaris, var. *maritima*. Wahlenb. Fl. Suec. 2. Lange, Pl. Groenl. 134.

H. montana. Ledeb. in Reichenb. Icon. Bot. 1. 71, t. 86, f. 81; Fl. R[illegible]oss. 2. 120. DC. Prodr. 3. 71. Cham. in Linnæa, 4. 507. Hook. Fl. Bor.-Am. 1. 2[illegible]11. Don, Mill. 2. 705. Dietr. 1. 26. Torr. & Gray, Fl. 1. 531. Eat. & Wr. 271. M[illegible]ax. mowicz, Prim. Fl. Amur. 107. Rothr. Fl. Alask. 446. Also referred to *H. vulg[illegible]ari* by Hook. f. Arct. Pl. 328.

H. vulgaris. Linn. Spec. 4. See syn. in Willd. Spec. 1. 26; Ledeb. Fl. R[illegible]oss. 2. 119; Pritzel, Index Icon. Bot. 1. 553 & 2. 150. — Michx. Fl. 1. 1. Barton, [illegible]ot. Appx. 22, t. 8. Pursh, 3. Nutt. Genera, 1. 3. Schrank, Pfl. Lab. 3. Roem[illegible]. & Schult. Syst. 1. 41. Torrey, Fl. U. S. 2; Fl. N. Y. 1. 244; Nicol. Rep. 150; [illegible]ac. R. Rep. 4. 88. Turpin, Dict. Sci. Nat. 39. 188, t. 220. Cham. in Linnæa, 4. [illegible]506. DC. Prod. 3. 71. Hook. Fl. Bor.-Am. 1. 217; Comp. Bot. Mag. 1. 46. Meyer, Pl. Lab. 73. Beck, Bot. 123. Schlecht. Fl. Lab. in Linnæa, 10. 97. Bigel. Fl. B[illegible]ost. 3 ed. 3. Torr. & Gray, Fl. 1. 531. Eat. & Wr. 271. Gray, Pl. Fendl. 47; St[illegible]uct. Bot. 419, f. 826-829; Proc. Acad. Philad. 1863, 61; Manual, 176. Parry, Pl. Minn. 612. Engelm. Pl. Upp. Miss. 192. Hook. f. in Journ. Linn. Soc. 1. [illegible]21; Arct. Pl. 291 & 328. Pl. Bourgeau, 256. Rothr. Fl. Alask. 446; Pl. Wheeler, 39. Matthew, Fl. Acad. 20. Boland. Cat. 12. Watson, King's Rep. 5. 102. Coulter, Hayd. Rep. 1872, 766. Porter, Pl. Col. 43. Brew. & Wats. Bot. Calif. 1. 215.

H. polyphylla. Raf. Fl. Lud. 13.

MYRIOPHYLLUM alterniflorum. DC. Fl. Franc. Suppl. 529; Prodr. 3. 68. — Credited to Greenland by Lange, Pl. Groenl. 134, and Hook. f. in Arct. Pl. 291.

M. ambiguum. Nutt. Genera, 2. 212. Torrey, Compend. 355; Fl. N. Y. 1. 243. Spreng. Syst. 3. 853. DC. Prodr. 3. 70. Don, Mill. 2. 704. Beck, Bot. 122. Torr. & Gray, Fl. 1. 530. Eat. & Wr. 325. Walp. Rep. 2. 98. Dietr. 5. 302. Gray, Manual, 175.

Var. **capillaceum.** Torr. & Gray, l. c. Torrey, l. c. 243. Gray, Manual, 175.

M. capillaceum. Torrey, Compend. 355. Beck, Bot. 122. Eat. & Wr. 324.

Var. **limosum.** Torrey, Compend. 355; Fl. N. Y. 1. 243, t. 98. DC. Prodr. 3. 70. Torr. & Gray, Fl. 1. 530. Gray, Manual, 175.

Burshia humilis. Raf. in N. Y. Med. Rep. 2. 361; Desv. Journ. Bot. 1. 219. Roem. & Schult. Syst. 3. 480.

Ptilophyllum humilis. Raf. Nov. Gen. 1811.

M. limosum. Nutt. Genera, 2. 212.

M. procumbens. Bigel. Fl. Bost. 2 ed. 346. Hook. Fl. 1. 216. Beck, Bot. 123.

M. heterophyllum. Michx. Fl. 2. 191. Persoon, 2. 563. Poir. Dict. 8. 686. Pursh, 274. Elliott, 2. 588. Spreng. Syst. 3. 853. Torrey, Compend. 355; Fl. N. Y. 1. 242.; Mex. Bound. 66. DC. Prodr. 3. 69. Don, Mill. 2. 703. Beck, Bot.

122. Hook. Comp. Bot. Mag. 1. 46. Nutt. Fl. Ark. 141. Torr. & Gray, Fl. 1. 529. Eat. & Wr. 324. Gray, Pl. Lindh. 191; Pl. Wright. 1. 72 & 2. 59; Manual, 175. Dietr. 5. 302. Chapman, 143.

Potamogeton verticillatum. Walter, 90.

M. hippuroides. Nutt.; Torr. & Gray, Fl. 1. 530. Walp. Rep. 2. 98. Dietr. 5. 302. Gray, Proc. Am. Acad. 8. 383. Brew. & Wats. Bot. Calif. 1. 215.

M. scabratum. Cham. in Linnæa, 4. 506.

M. laxum. Shuttleworth; Chapman, 143. Young, Fl. Texas, 272.

M. scabratum. Michx. Fl. 2. 190. Persoon, 2. 563. Poir. Dict. 8. 686. Pursh, 274. Elliott, 2. 588. Spreng. Syst. 3. 853. DC. Prodr. 3. 69. Don, Mill. 2. 704. Hook. l. c. 1. 46. Nutt. Fl. Ark. 141. Torr. & Gray, Fl. 1. 529. Eat. & Wr. 325. Dietr. 5. 302. Chapman, 144. Gray, Manual, 175; Hall's Pl. Texas, 9.

Potamogeton pinnatum. Walter, 90.

M. spicatum. Linn. Spec. 992. See syn. in Willd. Spec. 4. 406; Ledeb. Fl. Ross. 2. 118; Pritzel, Ind. Ic. Bot. 1. 732 & 2. 190. — Michx. Fl. 2. 190. Poir. Dict. 8. 684. Pursh, 274. Bigel. Fl. Bost. 345. James, Long's Exp. 2. 142. Richard. Frankl. Journ. 23. Spreng. Syst. 3. 853. Torrey, Compend. 354; Fl. N. Y. 1. 242; Nicol. Rep. 150. DC. Prodr. 3. 68. Hook. Fl. Bor.-Am. 1. 216. Don, Mill. 2. 703. Beck, Bot. 122. Nutt. Fl. Ark. 141. Torr. & Gray, Fl. 1. 529. Eat. & Wr. 324. Engelm. Pl. Upp. Miss. 192. Hook. f. Arct. Pl. 291 & 328. Pl. Bourgeau, 256. Gray, Manual, 175. Brew. & Wats. Bot. Calif. 1. 215.

M. tenellum. Bigel. Fl. Bost. 2 ed. 346. Torrey, Compend. 355; Fl. N. Y. 1. 243. DC. Prodr. 3. 68. Hook. Fl. Bor.-Am. 1. 216. Don, Mill. 2. 704. Beck, Bot. 122. Torr. & Gray, Fl. 1. 530. Eat. & Wr. 325. Dietr. 5. 302. Gray, Manual, 175.

M. verticillatum. Linn. Spec. 992. See syn. in Willd. Spec. 4. 407; Ledeb. Fl. Ross. 2. 118; Pritzel, Index Icon. Bot. 1. 732. — Michx. Fl. 2. 190. Poir. Dict. 8. 685. Pursh, 274. Nutt. Genera, 2. 211. Elliott, 2. 588. Spreng. Syst. 3. 853. Torrey, Compend. 355; Ann. Lyc. N. Y. 2. 252; Fl. N. Y. 1. 242; Bot. Wilkes, 300. DC. Prodr. 3. 68. Hook. Fl. Bor.-Am. 1. 216. Don, Mill. 2. 703. Beck, Bot. 122. Torr. & Gray, Fl. 1. 529. Eat. & Wr. 324. Parry, Pl. Minn. 612. Chapman, 143. Pl. Bourgeau, 256. Gray, Manual, 175. Watson, King's Rep. 5. 102. Coulter, Hayd. Rep. 1872, 766.

PROSERPINACA palustris. Linn. Spec. 88. Hill, Veg. Syst. 25, t. **60**, f. **1**. Walter, 84. Lam. Ill. 1. 214, t. **50**, f. **2**. Willd. Spec. 1. 488. Michx. Fl. 1. 76, excl. var. Jussieu, Ann. Mus. 3. 320, t. **30**, **I** (Koenig & Sims, Ann. Bot. 1. 535, t. **12**, **I**). Persoon, 1. 111. Poir. Dict. 8. 118. Bigel. Fl. Bost. 48. Elliott, 1. 181. Roem. & Schult. Syst. 2^2. 873. Torrey, Fl. U. S. 161; Fl. N. Y. 1. 241; Mex. Bound. 66. Spreng. Syst. 1. 416. DC. Prodr. 3. 67. Hook. Fl. Bor.-Am. 1. 215; Comp. Bot. Mag. 1. 26. Don, Mill. 2. 702. Nutt. Fl. Ark. 141. Beck, Bot. 121. Dietr. 1. 416. Torr. & Gray, Fl. 1. 528. Eat. & Wr. 376. Gray, Pl. Wright. 1. 72 & 2. 59; Manual, 175; Hall's Pl. Texas, 9. Chapman, 143.

Trixis palustris. Gaertn. Fruct. 1. 115, t. **24**, f. **8**.

P. pectinata. Lam. Ill. 1. 214, t. **50**, f. **1**. Pursh, 92. Elliott, 1. 182. Roem. & Schult. Syst. 2^2 874 Torrey, Fl. U. S. 162; Fl. N. Y. 1. 241. Spreng. Syst. 1. 416 DC. Prodr. 3. 67. Don Mill. 2. 703. Beck, Bot. 121. Hook. Comp. Bot. Mag. 46. Dietr. 1. 416. Torr. & Gray, Fl. 1. 528. Eat. & Wr. 376. Bigel. Fl. Bost. ed. 50. Gray, Pl. Lindh. 191; Manual, 175. Chapman, 143.

P. palustris, var. β. Michx. Fl. 1. 76. Poir. Dict. 8. 118.

Myriophyllum fulvescens. Bertoloni, Bot. Misc. 10. 23, t. **1** (Bot. Zeit. 14. 785); Gray, Am. Journ. Sci. 2. 24. 287.

RHIZOPHORACEÆ.

RHIZOPHORA Mangle. Linn. Spec. 443. See syn. in Willd. Spec. 2. 84. Griseb. Fl. Brit. W. Ind. 274; Pritzel, Ind. Icon. Bot. 1. 933. — DC. Prodr. 3. Torr. & Gray, Fl. 1. 484. Benth. Bot. Sulph. 14. Chapman, 135. Vasey, C Forest Trees, 15.

R. Americana. Nutt. Sylva, 1. 95, **t. 24.** Cooper, Smithson. Rep. 1858, 264.

COMBRETACEÆ.

CONOCARPUS erectus. Linn. Spec. 176. See syn. in Willd. Spec. 1. 9 Eichler, Mart. Fl. Bras. 14². 101; Pritzel, Ind. Icon. Bot. 1. 294. — DC. Prodr. 3. Torr. & Gray, Fl. 1. 485. Nutt. Sylva, 1. 113, **t. 33.** Griseb. Fl. Brit. W. Ind. 2 Eichler, l. c. **t. 35, f. 11.** Vasey, Cat. Forest Trees, 15.

Var. **sericeus.** Forst.; DC. Prodr. 3. 16. Nutt. l. c. 116. Chapman, 136.

LAGUNCULARIA racemosa. Gaertn. Fruct. 3. 209, **t. 217.** See syn. Willd. Spec. 1. 995 (under *Conocarpus*, Linn.); DC. Prodr. 3. 17; Eichler, l. c. **t. 35, f. III.** — Nutt. Sylva, 1. 117, **t. 34.** Benth. Bot. Sulph. 14. Chapman, Vasey, Cat. Forest Trees, 15.

L. glabrifolia. Presl, Rel. Haenk. 2. 22. Chapman, 136.

TERMINALIA CATAPPA, Linn. Torr. & Gray, Fl. 1. 485. Nutt. Sylva. 1. **t. 32.** Chapman, 137.

MYRTACEÆ.

CALYPTRANTHES Chytraculia. Swartz, Prodr. 79. See syn. in DC. Pr 3. 257; Berg, Linnæa, 27. 26; Griseb. Fl. Brit. W. Ind. 232. — Nutt. Sylva, 1. **t. 26.** Chapman, 131. (Key West; introduced?)

EUGENIA buxifolia. Willd. Spec. 960. See syn. in DC. Prodr. 3. 275; Gri Fl. Brit. W. Ind. 236. — Nutt. Sylva, 1. 103, **t. 27.** Chapman, 131. Vasey, Forest Trees, 15.

E. triplinervia. Berg, Linnæa, 27. 190, in part.

E. Cabanisiana. Berg, Linnæa, 27. 235.

E. dichotoma. DC. Prodr. 3. 278. See syn. in Nutt. Sylva, 1. 103; Griseb. Brit. W. Ind., under *Anamomis punctata.* — Nutt. l. c. **t. 27.** Berg, Linnæa, 27. Chapman, 131. Vasey, l. c. 15.

E. dicrana. Berg, Linnæa, 27. 259.

E. longipes. Berg, Linnæa, 27. 150.

E. monticola. DC. Prodr. 3. 275. See syn. in Griseb. l. c. 236. — Chapman, Vasey, l. c. 15.

E. triplinervia & axillaris. Berg, Linnæa, 27, 190 & 201, in part.

E. procera. Poir. Suppl. 2. 129. DC. Prodr. 3. 268. See Griseb. l. c. 23 Nutt. Sylva, 1. 106, **t. 28.** Berg, Linnæa, 27. 207. Chapman, 131. Vasey, l. c,

PSIDIUM buxifolium. Nutt. Sylva, 1. 98, t. 25. Berg, Linnæa, 27. 371.

P. GUAYAVA, Raddi. See Berg, l. c. 366; Mart. Fl. Bras. 14[1]. 395.

P. pyriforme, Linn. Vasey, Cat. Forest Trees, 15.

MELASTOMACEÆ.

RHEXIA ciliosa. Michx. Fl. 1. 221. Poir. Dict. 6. 4. Persoon, 1. 406. Pursh, 258, t. 10. Nutt. Genera, 1. 243. Elliott, 1. 439. Torrey, Fl. U. S. 386. Spreng. Syst. 2. 310. DC. Prodr. 3. 122. Sweet, Brit. Fl. Gard. t. 298. Don, Mill. 2. 746. Beck, Bot. 127. Hook. Comp. Bot. Mag. 1. 46. Spach, Hist. Veg. 4. 227. Torr. & Gray, Fl. 1. 478. Eat. & Wr. 391. Dietr. 2. 1272. Naudin, Melast. Monogr. in Ann. Sci. Nat. 3. 15. 65. Chapman, 132. Gray, Manual, 182.

? *R. petiolata.* Walter, 130. Persoon, 1. 409.

R. glabella. Michx. Fl. 1. 222. Persoon, 1. 406. Nutt. Genera, 1. 244. Elliott, 1. 438. Humb. & Bonpl. Monogr. Melast. 2, t. 44. Spreng. Syst. 2. 310. DC. Prodr. 3. 122. Don, Mill. 2. 746. Hook. Comp. Bot. Mag. 1. 46. Spach, Hist. Veg. 4. 227. Torr. & Gray, Fl. 1. 478. Eat. & Wr. 391. Dietr. 2. 1272. Naudin, l. c. 65. Chapman, 132. Wood, Cl.-Book, 347; Bot. & Fl. 122.

R. Alifanus, var. β. Poir. Dict. 6. 3.

Var. β. Torr. & Gray, Fl. 1. 478.

R. Alifanus. Walter, 130. Poir. Dict. 6. 3. Persoon, 1. 406.

R. lanceolata. Walter, 129. Lam. Ill. 2. 424, t. 283, f. 3. Torr. & Gray, Fl. 477. Naudin, l. c. 66. Wood, Cl.-Book, 347.

R. Mariana, var. *exalbida.* Michx. Fl. 1. 222. Poir. Dict. 6. 2. Chapman, 132.

R. trichotoma, var. *exalbida.* Persoon, 1. 406.

R. angustifolia. Nutt. Genera, 1. 244. Elliott, 1. 438. Spreng. Syst. 2. 310. DC. Prodr. 3. 122. Don, Mill. 2. 747. Hook. Comp. Bot. Mag. 1. 46. Spach, Hist. Veg. 4. 226. Eat. & Wr. 391. Dietr. 2. 1272.

R. lutea. Walter, 130. Michx. Fl. 1. 222. Poir. Dict. 6. 3. Persoon, 1. 406. Pursh, 258, t. 10. Nutt. Genera, 1. 244. Elliott, 1. 440. Spreng. Syst. 2. 311. DC. Prodr. 3. 122. Don, Mill. 2. 747. Hook. Comp. Bot. Mag. 1. 46. Spach, Hist. Veg. 4. 228. Torr. & Gray, Fl. 1. 478. Eat. & Wr. 391. Dietr. 2. 1272. Naudin, l. c. 65. Chapman, 133. Wood, Cl.-Book, 348; Bot. & Fl. 123.

R. Mariana. Linn. Spec. 346. Hill, Veg. Syst. 10. 51, t. 51, f. 2. Walter, 130. Ait. Hort. Kew. 2. 2. Lam. Ill. 2. 424, t. 283, f. 1. Gaertn. Fruct. t. 112. Willd. Spec. 2. 301. Michx. Fl. 1. 222, excl. var. γ. Poir. Dict. 6. 1. Persoon, 1. 406. Pursh, 257. Lodd. Bot. Cab. t. 366. Humb. & Bonpl. Monogr. Melast. 1, t. 47. Elliott, 1. 437. Barton, Fl. N. Am. 1. 97, t. 27. Sweet, Brit. Fl. Gard. t. 41. Torrey, Fl. U. S. 386. Spreng. Syst. 2. 310. DC. Prodr. 3. 121. Don, Mill. 2. 746, f. 109. Beck, Bot. 127. Spach, Hist. Veg. 4. 226. Hook. Comp. Bot. Mag. 1. 46. Maund, Botanist, 1, t. 28. Torr. & Gray, Fl. 1. 477. Eat. & Wr. 391. Naudin, l. c. 64. Chapman, 132. Gray, Manual, 181; Hall's Pl. Texas, 9.

? *R. Ludoviciana.* Raf. Fl. Lud. 92.

R. serrulata. Nutt. Genera, 1. 243. DC. Prodr. 3. 122. Don, Mill. 2. 746. Torr. & Gray, Fl. 1. 478. Eat. & Wr. 391. Dietr. 2. 1272. Naudin, l. c. 66. Chapman, 133. Wood, Cl.-Book, 348; Bot. & Fl. 122.

R. stricta. Pursh, 258. Elliott, 1. 439. Spreng. Syst. 2. 310. DC. Prodr. 3. 122. Don, Mill. 2. 746. Torr. & Gray, Fl. 1. 477. Eat. & Wr. 391. Dietr. 2. 1272. Naudin, l. c. 66. Chapman, 132. Wood, Cl.-Book, 347; Bot. & Fl. 122.

Sabbatia simplex. Bertoloni, Bot. Misc. 10. 27, **t. 3** (Bot. Zeit. 9. 919. Gray, Am. Journ. Sci. 2. 14. 115.

R. Virginica. Linn. Spec. 346. Hill, Veg. Syst. 10. 51, **t. 51, f. 1.** L 2. 424, **t. 283, f. 2.** Willd. Spec. 2. 301. Michx. Fl. 1. 222. Poir. Di B. S. Barton, Bot. Appx. 26, **t. 16.** Persoon, 1. 406. Sims, Bot. Mag. **t. 96** f. Hort. Kew. 2. 340. Pursh, 258. Bigel. Fl. Bost. 148. Elliott, 1. 439. Fl. N. Am. 1. 13, **t. 4.** James, Long's Exp. 3. 33. Lodd. Bot. Cab. **t. 84(** rey, Fl. U. S. 385; Ann. Lyc. N. Y. 2. 199; Fl. N. Y. 1. 227. Spreng. Syst Maund, Bot. Gard. 3, **t. 129.** DC. Prodr. 3. 121. Don, Mill. 2. 746. Be 127. Spach, Hist. Veg. 4. 227. Hook. Comp. Bot. Mag. 1. 46. Reich Exot. **t. 234.** Darling. Fl. Cestr. 242. Torr. & Gray, Fl. 1. 477. Eat. & W Dietr. 2. 1272. Naudin, l. c. 64. Chapman, 132. Gray, Manual, 181. Am. Naturalist, 7. 692. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 327.

R. septemnervia. Walter, 130.

LYTHRACEÆ.

AMMANNIA dentifera. Gray, Pl. Wright. 2. 55.

A. humilis. Michx. Fl. 1. 99. Persoon, 1. 147. Pursh, 107. Roem. & Syst. 3. 302. Elliott, 1. 218. Bigel. Fl. Bost. 2 ed. 53. Torrey, Fl. U. S. 1 N. Y. 1. 228. Spreng. Syst. 1. 443. DC. Prodr. 3. 79. Don, Mill. 2. 709. Be 125. St. Hilaire, Ann. Sci. Nat. 2. 1. 8. Hook. Comp. Bot. Mag. 1. 46. Gray, Fl. 1. 480. Dietr. 1. 506. Eat. & Wr. 122. Seem. Bot. Herald, 284. man, 134. Griseb. Fl. Brit. W. Ind. 270. Gray, Manual, 182; Hall's Pl. T

A. ramosior. Linn. Spec. 120. Walter, 88. Ait. Hort. Kew. 1. 163. Meyer, Ind. Sem. Petrop. 7. 41 (Litt.-Ber. zu Linnæa, 1841, 104).

A. ramosa. Hill, Veg. Syst. 11. 14, **t. 14, f. 2.**

Boykinia humilis. Raf. Rev. 1817; Aut. Bot. 9.

A. occidentalis. DC. Prodr. 3. 78, & syn. Chapman, 134 (var. *pygmæa*).

Var. β. Torr. & Gray, Fl. 1. 480.

A. purpurea. Lam. Dict. 1. 131; Ill. 1. 311.

A. ramosior. Michx. Fl. 1. 99. Persoon, 1. 146. Roem. & Schult. Syst in part. Elliott, 1. 218. Spreng. l. c. DC. Prodr. 3. 78. Don, l. c.

A. latifolia. Linn. Spec. 119. See syn. in Willd. Spec. 1. 678; DC. Prod Seem. Bot. Herald, 284; Griseb. Fl. Brit. W. Ind. 270. — Don, Mill. 2. 7 Hilaire, l. c. 6. Hook. Comp. Bot. Mag. 1. 46. Torr. & Gray, Fl. 1. 480. Pl. Fendl. 42; Pl. Lindh. 188; Pac. R. Rep. 12. 43; Manual, 182. Parry, P 612. Torrey, Pac. R. Rep. 4. 86 & 5. 361; Mex. Bound. 65; Bot. Wilk A. H. Smith, Proc. Acad. Philad. 1867, 19. Watson, King's Rep. 5. 103. & Wats. Bot. Calif. 1. 214.

A. ramosior. Linn. Mant. 2. 332, not Spec. Willd. Spec. 1. 678. Pu Roem. & Schult. Syst. 3. 302, in part. Torrey, Fl. U. S. 189; Ann. Ly 2. 199. Beck, Bot. 125. Eat. & Wr. 122. Dietr. 1. 506.

A. humilis. Torr. & Gray, Fl. 1. 480, as to hab. Oregon.

A. stylosa. Fisch. & Meyer, Ind. Sem. Petrop. 7. 41 (Litt.-Ber. zu Linna 104; Ann. Sci. Nat. 2. 16. 48). Walp. Rep. 2. 102.

A. Texana. Scheele, Linnæa, 21. 588. Walp. Ann. 2. 538.

A. lingulata. Grisebach, Cat. Pl. Cub. 106.

A. Wrightii. Gray, Pl. Wright. 2. 55. Torrey, Mex. Bound. 65.

CUPHÆA aspera. Chapman, 135.

C. **viscosissima.** Jacquin, Hort. Vindob. 2. 83, t. **177.** Roth, Beytr. 1. 124. Ait. Hort. Kew. 1. 129. Lam. Ill. 2. 523, t. **407.** Gaertn. Fruct. t. **44.** Moench, Meth. 664. Willd. Spec. 2. 870; Enum. 498. Michx. Fl. 1. 281. Poir. Dict. 6. 462. Pursh, 335. Nutt. Genera, 1. 304. Elliott, 1. 546. Barton, Fl. N. Am. 1. 63, t. **18.** Sweet, Brit. Fl. Gard. t. **60.** Torrey, Fl. U. S. 472; Fl. N. Y. 1. 230. Spreng. Syst. 2. 456. DC. Prodr. 3. 85. Don, Mill. 2. 714. Beck, Bot. 126. Spach, Hist. Veg. 4. 425. Darling. Fl. Cestr. 284. Torr. & Gray, Fl. 1. 483. Eat. & Wr. 215. Dietr. 3. 12. Griseb. Fl. Brit. W. Ind. 269. Chapman, 135. Gray, Manual, 184. Koehn, Ind. Sem. h. Berol. 1873, Appx. 2. 1.

Lythrum petiolatum. Linn. Spec. 446. Hill, Veg. Syst. 16, t. **18,** f. **2.** Poir. Dict. 6. 455. Persoon, 2. 8.

Lythrum Cuphæa. Linn. f. Suppl. 249.

Balsamona Pinto. Vandelli, Fasc. 15, t. **3.** Roemer, Script. 110, t. **4.**

? *Silene axillaris.* Leavenworth, Am. Journ. Sci. 1. 7. 62. Torr. & Gray, Fl. 1. 194 & 676. Eat. & Wr. 428. Walp. Rep. 1. 279.

C. **Wrightii.** Gray, Pl. Wright. 2. 56. Walp. Ann. 4. 689. Torrey, Mex. Bound. 65.

DIDIPLIS linearis. Raf. in Atlant. Journ. 1833; New Flora, 4. 9. Benth. & Hook. Gen. Pl. 1. 777.

Callitriche autumnalis ? Michx. Fl. 1. 2.

Peplis (?) *diandra.* Nutt. in DC. Prodr. 3. 77. Don, Mill. 2. 708.

Hypobrichia Nuttallii. M. A. Curtis in Torr. & Gray, Fl. 1. 479. Chapman, 133. Wood, Cl.-Book, 350. Young, Fl. Texas, 262.

Ammannia Nuttallii. Gray, Manual, 4 ed. Add. xcii.

Didiplis diandra. Wood, Bot. & Fl. 124.

LYTHRUM alatum. Pursh, 334. Sims, Bot. Mag. t. **1812.** Poir. Suppl. 5. 21. Nutt. Genera, 1. 303. Elliott, 1. 545. Beck, Am. Journ. Sci. 10. 112. Spreng. Syst. 2. 454. DC. Prodr. 3. 81. Hook. Fl. 1. 219; Comp. Bot. Mag. 1. 46. Don, Mill. 2. 711. Spach, Hist. Veg. 4. 420. Torr. & Gray, Fl. 1. 481; Pac. R. Rep. 2. 126. Dietr. 3. 10. Gray, Pl. Fendl. 43; Pl. Lindh. 188; Manual, 183; Hall's Pl. Texas, 9. Torrey, Emory's Rep. 140; Mex. Bound. 65. Parry, Pl. Minn. 612. Engelm. Pl. Upp. Miss. 191. Chapman, 134. Porter, Fl. Col. 46. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 328. Brew. & Wats. Bot. Calif. 1. 214.

Pythagorea alata. Raf. Journ. Phys. 1819, 96.

L. Virginicum. Kenn. Hort.

L. Kennedyanum. HBK. Nov. Gen. 6. 194; fide DC.

Var. **lanceolatum.** Torr. & Gray, Fl. 1. 481. Gray, Pl. Lindh. 188. Watson, Pl. Wheeler, 9.

? *L. virgatum.* Walter, 120. Poir. Dict. 6. 452, in part. Pursh, 334.

L. lanceolatum. Ell. 1. 544. DC. Prodr. 3. 82. Don, Mill. 2. 711. Spach, Hist. Veg. 4. 420. Dietr. 3. 10.

L. ——— ? *n. sp.* Nutt.; Torrey, Ann. Lyc. N. Y. 2. 199.

L. hyssopifolium. Curtis, Journ. Bost. Soc. Nat. Hist. 1. 121.

L. alatum, var. γ. Torr. & Gray, Fl. 1. 482. Gray, Pl. Lindh. 188.

Var. **linearifolium.** Gray, Pl. Lindh. 188; Pl. Wright. 1. 69. Walp. Ann. 2. 539. Dur. & Hilg. in Pac. R. Rep. 5. 7. Brew. & Wats. Bot. Calif. 1. 214.

L. lineare. Hook. & Arn. Bot. Beechey, 343.

L. Californicum. Torr. & Gray, Fl. 1. 482. Walp. Rep. 2. 104. Dietr. 3. 10. Benth. Pl. Hartw. 310. Boland. Cat. 12.

Var. **pumilum.** Gray, Pl. Lindh. 187; Pl. Wright. 1. 69. Walp. Ann. 2. 539.

Var. **ovalifolium**. Gray, Pl. Lindh. 187. Walp. Ann. 2. 539.

? *L. flagellare*. Shuttleworth, in herb.

L. breviflorum. Watson, Proc. Am. Acad. 12. 251.

L. alatum, var. *breviflorum*. Gray, Pl. Lindh. 187. Walp. Ann. 2. 539.

L. Hyssopifolia. Linn. Spec. 447. See syn. in DC. Prodr. 3. 81, &c.; Pritzel, Ind. Icon. Bot. 1. 671. — Nutt. Genera, 1. 303. Bigel. Fl. Bost. 2 ed. 188. Torrey, Fl. U. S. 472; Fl. N. Y. 1. 229. Beck, Bot. 126. Torr. & Gray, Fl. 1. 481. Gray, Manual, 183. Perhaps only introduced.

L. lineare. Linn. Spec. 447. Hill, Veg. Syst. 16, **t. 18, f. 3**. Willd. Spec. 2. 868. Michx. Fl. 1. 280. Poir. Dict. 6. 453. Persoon, 2. 8. Pursh, 334. Nutt. Genera 1. 303. Elliott, 1. 545. Spreng. Syst. 2. 454. DC. Prodr. 3. 81. Don, Mill. 2. 711. Curtis, Bot. N. Car. 1. 121. Torr. & Gray, Fl. 1. 482. Dietr. 3. 10. Chapman, 134. Gray, Manual, 183.

Pythagorea linearis. Raf. Journ. Phys. 1819, 96.

L. Salicaria, Linn. Hook. Fl. Bor.-Am. 1. 219. Torr. & Gray, Fl. 1. 482. Hook. f. Arct. Pl. 291. Gray, Manual, 183.

L. Salicaria, var. *pubescens*. Pursh, 334. Torrey, Fl. U. S. 471. DC. Prodr. 3. 83. Don, Mill. 2. 712. Beck, Bot. 126.

L. diffusum. Sweet, Hort. Brit. 150; Brit. Fl. Gard. **t. 149**. Maund, Bot. Gard. 10, **t. 470**. Spach, Hist. Veg. 4. 421.

L. Purshianum. Steudel, Nomencl. 2. 86.

NESÆA longipes. Gray, Pl. Wright. 1. 68 & 2. 56. Walp. Ann. 4. 688. Torrey, Mex. Bound. 65.

N. salicifolia. HBK. Nov. Gen. & Sp. 6. 192. Reichenb. Hort. Bot. 2. 26, t. **166**. Gray, Pl. Wright. 1. 69. Torrey, Mex. Bound. 65.

Heimia salicifolia. Link, Enum. 2. 3. Link & Otto, Icon. Pl. 63, **t. 28**. DC. Prodr. 3. 89. Sweet, Brit. Fl. Gard. **t. 281**. Hook. Icon. **t. 554, B, C**. Benth. Pl. Hartw, 288. Seem. Bot. Herald, 284. Griseb. Fl. Brit. W. Ind. 271.

N. verticillata. HBK. l. c. 191. Spreng. Syst. 2. 455. Curtis, Bot. N. Car. 109. Chapman, 134. Gray, Manual, 183. Wright, Am. Naturalist, 7. 737.

Lythrum verticillatum. Linn. Spec. 446. Hill, Veg. Syst. 16, **t. 18, f. 1**. Willd. Spec. 2. 866. Michx. Fl. 1. 281. Poir. Dict. 6. 453. Persoon, 2. 8. Ait. f. Hort. Kew. 3. 150. Pursh, 334. Bigel. Fl. Bost. 188. Nutt. Genera, 1. 303. Torrey, Fl. U. S. 471. Bertoloni, Bot. Misc. 3. 13, **t. 4**.

Anonymos aquaticum. Walter, 137.

Decodon aquaticus. Gmelin, Syst. Veg. 677.

Decodon verticillatum. Elliott, 1. 544. DC. Prodr. 3. 98. Hook. Fl. Bor.-Am. 1. 219. Don, Mill. 2. 721. Beck, Bot. 126. Torr. & Gray, Fl. 1. 483. Dietr. 3. 15. Torrey, Fl. N. Y. 1. 229, t. **28**. Gray, Manual, 1 ed. 133.

ONAGRACEÆ.

BOISDUVALIA densiflora. Watson, Bot. Calif. 1. 233.

Œnothera densiflora. Lindl. Bot. Reg. 19, **t. 1593** (Litt.-Ber. zu Linnæa, 1835, 15). Maund, Bot. Gard. 12, **t. 540**. Torr. & Gray, Fl. 1. 505. Hook. in Lond. Journ. Bot. 6. 224. Torrey, Pac. R. Rep. 4. 86; Bot. Wilkes, 297. Newberry, Pac. R. Rep. 6. 74. Boland. Cat. 12. Anderson, Cat. Pl. Nev. 120. Gray, Proc. Am. Acad. 8. 384, excl. vars. Watson, Rev. Œnoth. in Proc. Am. Acad. 8. 600.

3. *Douglasii.* Spach, Monogr. Onagr. 80, t. **31**, f. **2**; Hist. Veg. 4. 385, t. **85**, f. **2**. p. Rep. 2. 89.

glabella. Walp. Rep. 2. 89. Brew. & Wats. Bot. Calif. 1. 233.
Enothera glabella. Nutt.; Torr. & Gray, Fl. 1. 505. Watson, King's Rep. 5. 108; Œnoth. 601. Gray, Proc. Am. Acad. 8. 384.

Torreyi. Watson, Bot. Calif. 233.
Hayophytum strictum. Gray, Proc. Am. Acad. 7. 340. Boland. Cat. 12.
Enothera densiflora, var. *tenella.* Gray, Proc. Am. Acad. 8. 384.

CÆA alpina. Linn. Spec. 9. See syn. in Willd. Spec. 1. 53; Roem. & lt. Syst. 1. 271; Ledeb. Fl. Ross. 2. 114; Pritzel, Ind. Icon. Bot. 1. 270 & 2. 80. ichx. Fl. 1. 17. Pursh, 21. Nutt. Genera, 1. 18. Elliott, 1. 7. Torrey, Fl. 30; Fl. N. Y. 1. 240. Bigel. Fl. Bost. 2 ed. 11. DC. Prodr. 3. 63. Hook. Fl. Am. 1. 215. Don, Mill. 2. 699. Beck, Bot. 121. Presl, Rel. Haenk. 2. 37. & Gray, Fl. 1. 527, excl. hab. Oregon. Eat. & Wr. 198. Chapman, 143. c. f. Arct. Pl. 291. Rothr. Fl. Alask. 446. Gray, Manual, 176. Ascherson & nus, Bot. Zeit. 28. 748.

utetiana. Linn. Spec. 8. See syn. in Willd. Spec. 1. 53; Ledeb. Fl. Ross. 3; Pritzel, l. c. 270. — Persoon, 1. 10. Bigel. Fl. Bost. 11. Torr. & Gray, Fl. 1. Eat. & Wr. 198. Torrey, Fl. N. Y. 1. 239; Nicol. Rep. 150. Engelm. Pl. Miss. 192 ? Gray, Pac. R. Rep. 12. 43 ?; Manual, 176. Chapman, 143. ers. & Mag. l. c. 777.
Lutetiana, var. *Canadensis.* Linn. l. c. Willd. l. c. Michx. Fl. 1. 17. Vahl, 1. 1. 301. Pursh, 21. Elliott, 1. 7. Torrey, Fl. U. S. 29. DC. Prodr. 3. 63. Fl. Bor.-Am. 1. 215. Don, Mill. 2. 699. Beck, Bot. 120.
Canadensis. Hill, Veg. Syst. 10, t. **21**, f. **2**. Muhl. Cat. 2. Beck, Am. Sci. 10. 261.

acifica. Aschers. & Mag. in Bot. Zeit. 29. 392. Gray, Proc. Am. Acad. Brew. & Wats. Bot. Calif. 1. 234.
alpina. Hook. in Lond. Journ. Bot. 6. 225. Cooper, Pac. R. Rep. 12. 61. Pl. reau, 256. Anderson, Cat. Pl. Nev. 120. Porter, Fl. Col. 44.
Lutetiana. Boland. Cat. 12. Torrey, Bot. Wilkes, 300.
alpina, var. *intermedia.* Watson, King's Rep. 5. 113.

RKIA elegans. Lindl. Bot. Reg. 19, t. **1575** (Litt.-Ber. zu Linnæa, 1835, nd 23, under t. 1981. Don, in Sweet, Brit. Fl. Gard. 2 ser. t. **209**. Hook. & Bot. Beechey, 340. Hook. Bot. Mag. t. **3592**. Torr. & Gray, Fl. 1. 515. Rep. 2. 89. Dietr. 2. 1298. Benth. Pl. Hartw. 310. Torrey, Pac. R. Rep. Dur. & Hilgard, same, 5. 8. Newberry, same, 6. 74. Gray, Proc. Bost. Nat. Hist. 7. 146. Wood, Cl.-Book, 354; Bot. & Fl. 127. Brew. & Wats. Bot. 1. 232.
æostoma Douglasii. Spach, Monogr. Onogr. 74; Hist. Veg. 4. 393.
unguiculata. Lindl. Bot. Reg. 23, under t. 1981. Torr. & Gray, Fl. 1. 516. Rep. 2. 89. Dietr. 2. 1298.
æostoma elegans & unguiculata. Lilja, Linnæa, 15. 261.
Gauropsis lancifolia. Presl, Epimel. Bot. 219.

ilchella. Pursh, 260, t. **11**. Poir. Suppl. 5. 621; Lam. Ill. 3. 602, t. **942**. Genera, 1. 249. Lindl. Bot. Reg. 13, t. **1100**, and 23, under t. 1981. DC. 3. 52. Maund, Bot. Gard. 5, t. **199**. Hook. Fl. Bor.-Am. 1. 214; Bot. Mag. 18; Lond. Journ. Bot. 6. 225. Reichenb. Hort. Bot. 3. 5, t. **211**. Nees, Gart. t. **69**. Don, Mill. 2. 691. Sweet, Brit. Fl. Gard. 2 ser. t. **157**. Spach, Veg. 4. 395. Hook. & Arn. Bot. Beechey, 340. Torr. & Gray, Fl. 1. 515.

Eat. & Wr. 198. Lilja, Linnæa, 15. 260. Walp. Rep. 2. 89. Dietr. 2. 1298. Lemaire, Ill. Hort. 5, t. **159**. Wood, Cl.-Book, 354; Bot. & Fl. 126. Torrey, Bot. Wilkes, 299. Brew. & Wats. Bot. Calif. 1. 231.

C. rhomboidea. Dougl.; Hook. Fl. Bor.-Am. 1. 214; Lond. Journ. Bot. 6. 225. Don, Mill. 2. 691. Lindl. Bot. Reg. 23, t. **1981**. Hook. & Arn. Bot. Beechey, 340. Torr. & Gray, Fl. 1. 516. Walp. Rep. 2. 89. Dietr. 2. 1298. Durand, Pl. Pratten, 88. Wood, Bot. & Fl. 127. Watson, King's Rep. 5. 104. Coulter, Hayd. Rep. 1872, 767. Torrey, Bot. Wilkes, 299. Brew. & Wats. Bot. Calif. 232.

C. gauroides. Don in Sweet, Brit. Fl. Gard. 2 ser. t. **379**.

Opsianthes gauroides. Lilja, Linnæa, 15. 261.

C. Xantiana. Gray, Proc. Bost. Soc. Nat. Hist. 7. 145. Brew. & Wats. l. c.

EPILOBIUM affine. Bongard, Veg. Sitch. 135 (Presl, Repert. Bot. 1. 314). Torr. & Gray, Fl. 1. 489. Dietr. 2. 1291. Walp. Rep. 2. 91. Ledeb. Fl. Ross. 2. 110. Rothr. Fl. Alask. 446.

E. alpinum. Linn. Spec. 348. See syn. in Willd. Spec. 2. 318; Seringe, DC. Prodr. 3. 41; Ledebour, Fl. Ross. 2. 111; Babington, Ann. & Mag. Nat. Hist. 2. 17. 311; Pritzel, Ind. Icon. Bot. 1. 402. — Pursh, 260. Spreng. Syst. 2. 233. Hook. Fl. Bor.-Am. 1. 205. Meyer, Pl. Lab. 72. Don, Mill. 2. 680. Beck, Bot. 117. Torr. & Gray, Fl. 1. 488. Eat. & Wr. 233. Torrey, Fl. N. Y. 1. 232. Tuckerman, Am. Journ. Sci. 2. 6. 22. Grisebach, Bot. Zeit. 10. 853. Lange, Pl. Groenl. 133. Hook. f. in Journ. Linn. Soc. 1. 121; Arct. Pl. 291 & 327. Pl. Bourgeau, 256. Gray, Am. Journ. Sci. 2. 33. 405; Proc. Acad. Philad. 1863, 61; Manual, 177; Proc. Am. Acad. 8. 384. Rothr. Fl. Alask. 446. Watson, King's Rep. 5. 103. Porter, Fl. Col. 42. Barbey in Brew. & Wats. Bot. Calif. 1. 219.

Var. **nutans.** Lehm. in Hook. Fl. Bor.-Am. 1. 205, excl. syn. ? Torr. & Gray, Fl. 1. 488. Wood, Cl.-Book, 351.

E. Hornemanni. Bongard, Veg. Sitch. 136; not Reichenb. Icon. Crit. 2. 73, t. **180**. Ledeb. Fl. Ross. 2. 112.

E. anagallidifolium. Lam. Dict. 2. 376; Ill. 2. 421, t. **278, f. 3.** Babington, l. c. 312. — Credited to Greenland by Grisebach, Bot. Zeit. 10. 853.

E. brevistylum. Barbey in Brew. & Wats. Bot. Calif. 1. 220.

E. coloratum. Muhl.; Willd. Enum. 1. 411. Spreng. Mant. Fl. Hal. 39; Syst. 2. 233. Poir. Suppl. 2. 57. Pursh, 260. Bigel. Fl. Bost. 147. Nutt. Genera, 1. 250. Link, Enum. 1. 379. Torrey, Fl. U. S. 302; Fl. N. Y. 1. 232; Nicol. Rep. 150; Frem. Rep. 89; Sitgr. Rep. 159; Pac. R. Rep. 4. 86; Mex. Bound. 65; Bot. Wilkes, 296. Seringe, DC. Prodr. 3. 42. Hook. Fl. Bor.-Am. 1. 206. Don, Mill. 2. 681. Beck, Bot. 116. Hook. Comp. Bot. Mag. 1. 25; Lond. Journ. Bot. 6. 221. Fisch. & Mey. in Ind. Sem. Petrop. 3. 33 (Litt.-Ber. zu Linnæa, 1838, 93). Darling. Fl. Cestr. 239. Torr. & Gray, Fl. 1. 489. Eat. & Wr. 233. Dietr. 2. 1292. Gray, Pl. Fendl. 43; Pl. Wright. 1. 69 & 2. 56; Proc. Bost. Soc. Nat. Hist. 7. 146; Manual, 178. Durand & Hilgard, Pac. R. Rep. 5. 7. Newberry, same, 6. 74. Cooper, same, 12. 60. Chapman, 140. Porter, Hayd. Rep. 1870, 476. Barbey in Brew. & Wats. Bot. Calif. 1. 219; Monogr. Epil. ined. t. **9**.

E. tetragonum. Pursh, 259. Elliott, 1. 445. Torrey, Pac. R. Rep. 4. 86. Boland. Cat. 12. Watson, King's Rep. 5. 103, in part.

? *E. divaricatum.* Raf. Prec. Découv. 41; Desv. Journ. Bot. 1814, 271. Poir. Suppl. 5. 668. Seringe, l. c. Don, Mill. 2. 682. Eat. & Wr. 234. Dietr. 2. 1292.

E. Franciscanum. Barbey, Brew. & Wats. Bot. Calif. 1. 220.

E —— ? Torrey, Pac. R. Rep. 4. 86, under *E. tetragonum.*

laberrimum. Barbey, l. c. 220; Monogr. t. 5.

r. **latifolium.** Barbey, ll. cc.

IRSUTUM, Linn. Spreng. Syst. 2. 232. Gray, Manual, 177.

atifolium. Linn. Spec. 347. See syn. in Willd. Spec. 2. 314; Ledeb. Fl. Ross. 6; Trautv. & Mey. Fl. Ochot. 38. — Oeder, Fl. Dan. 4, t. 565. Lam. Dict. 4. Pursh, 259. Richard. Frankl. Journ. 8. Hook. in Trans. Linn. Soc. 72; Fl. Bor.-Am. 1. 205. Spreng. Syst. 2. 232. Cham. & Schlecht. in Linnæa, 2. DC. Prodr. 3. 40. Meyer, Pl. Lab. 71. Bongard, Veg. Sitch. 134. Don, 2. 680 (& var. *venustum*, Dougl.). Presl, Rel. Haenk. 2. 29. Hook. & Arn. Beechey, 123. Torr. & Gray, Fl. 1. 487. Eat. & Wr. 233. Dietr. 2. 1290. r, Ann. & Mag. Nat. Hist. 16. 171. Seem. Bot. Herald, 30, 52 & 55. Durand, Kane. in Journ. Acad. Philad. 1856, 191 (Kane's Exped. 2. 454). Lange, Pl. nl. 134. Hook. f. in Journ. Linn. Soc. 1. 116, 121 & 124, & 5. 83; Arct. Pl. 291. ie, Journ. Linn. Soc. 3. 111. Gray, Am. Journ. Sci. 2. 33. 405; Proc. Acad. id. 1863, 61. Pl. Bourgeau, 256. Rothr. Fl. Alask. 446; Pl. Wheeler, 39. er, Fl. Col. 43. Barbey, Brew. & Wats. Bot. Calif. 1. 219.

iteum. Pursh, 259. Poir. Suppl. 5. 668. Spreng. Syst. 2. 233. Cham. & echt. in Linnæa, 2. 553. Seringe, DC. Prodr. 3. 44. Hook. Fl. Bor.-Am. 3. Bongard, Veg. Sitch. 135. Don, Mill. 6. 83. Torr. & Gray, Fl. 1. 487. & Wr. 234. Dietr. 2. 1292. Walp. Rep. 2. 90. Ledeb. Fl. Ross. 2. 107. ver, Pac. R. Rep. 12. 60. Rothr. Fl. Alask. 445. Barbey, l. c. 219.

inutum. Lindley in Hook. Fl. Bor.-Am. 1. 207. Don, Mill. 2. 681. Torr. ay, Fl. 1. 490. Eat. & Wr. 234. Dietr. 2. 1292. Walp. Rep. 2. 91. Hook. nd. Journ. Bot. 6. 221. Engelm. Pl. Upp. Miss. 491. Torrey, Pac. R. Rep. ; Bot. Wilkes, 296. Cooper, Pac. R. Rep. 12. 60. Boland. Cat. 12. Gray, Am. Acad. 8. 384. Watson, same, 11. 115. Barbey, l. c.; Monogr. t. 7. *rossostigma Lindleyi.* Spach, Rev. Onagr. 84.

· **foliosum.** Torr. & Gray, Fl. 1. 490. Porter, Fl. Col. 221.

iolle. Torrey, Fl. U. S. 393, not Lam.; Fl. N. Y. 1. 233. Torr. & Gray, 490. Eat. & Wr. 233. Walp. Rep. 2. 91. Gray, Manual, 178.

· *strictum.* Muhl. Cat. 39. Spreng. Syst. 2. 233. DC. Prodr. 3. 41. Don, 2. 681. Beck, Bot. 117.

bcordatum. Gray, Proc. Am. Acad. 6. 532. Watson, King's Rep. 5. 104. ey, Brew. & Wats. Bot. Calif. 1. 218; Monogr. Epil. ined. t. 3.

pacum. Lehmann in Hook. Fl. Bor.-Am. 1. 205; Pug. Nov. Pl. 2. 14. Don, 2. 680. Torr. & Gray, Fl. 1. 487. Eat. & Wr. 233. Dietr. 2. 1290. Walp. 2. 90. Perhaps hybrid of *E. latifolium* & *E. strictum*, fide Barbey, l. c.

riganifolium. Lam. Dict. 2. 376. See syn. in Ledeb. Fl. Ross. 2. 111; Koch, erm. 3 ed. 209; Griseb. in Bot. Zeit. 10. 853, and Babington, Ann. & Mag. Hist. 2. 17. 313, as *E. alsinefolium.* — Persoon, 1. 410. Reichenb. Iconogr. Bot. t. 180, f. 314. Cham. & Schlecht. in Linnæa, 2. 553. DC. Prodr. 3. 41. : Fl. Bor.-Am. 1. 206. Don, Mill. 1. 680. Eat. & Wr. 233. Lange, Pl. Groenl. Pl. Bourgeau, 256. Anderson, Cat. Pl. Nev. 120. Barbey, l. c. 219.

· *alsinefolium.* Villars, Hist. Pl. Dauph. 2. 511. Liebm. in Fl. Dan. 15, t. 2587.

, Am. Journ. Sci. 2. 33. 405.

· *alpestre.* Schrank, Pfl. Lab. 15. Meyer, Pl. Lab. 73.

· *alpinum.* Bigel. Fl. Bost. 2 ed. 147.

· *alpinum*, var. *majus.* Wahl. Fl. Suec. 1. 234. Torr. & Gray, Fl. 1. 488. berry, Pac. R. Rep. 6. 74. Gray, Manual, 177.

E. palustre. Linn. Spec. 348. See syn. in Willd. Spec. 2. 317; Ledeb. Fl 2. 109; Trautv. & Meyer, Fl. Ochot. 38; Griseb. in Bot. Zeit. 10. 852. — Purs Spreng. Syst. 2. 233. Hook. Fl. Bor.-Am. 1. 207. Beck, Bot. 116. Torr. & Fl. 1. 490. Eat. & Wr. 233. Torrey, Fl. N. Y. 1. 233; Pac. R. Rep. 4. 86. Pl. Groenl. 133. Hook. f. Arct. Pl. 291 & 328. Gray, Proc. Acad. Philad. 18 Pl. Bourgeau, 256. Rothr. Fl. Alask. 446. Porter, Fl. Col. 43.

Var. **lineare.** Gray, Manual (2 ed. 130), 177. Chapman, 140. Kept disti Grisebach, l. c.; Fries, Summ. Veg. Scand. 176.

? *E. angustissimum.* Willd. Spec. 2. 313, as to habitat Greenland.

E. oliganthum. Michx. Fl. 1. 223. Poir. Suppl. 2. 570. Seringe, DC. 3. 43. Hook. Fl. Bor.-Am. 1. 208. Don, Mill. 2. 681. Dietr. 2. 1292.

? *E. ciliatum.* Raf. Desv. Journ. Bot. 1. 229. Poir. Suppl. 5. 668.

E. rosmarinifolium. Pursh, 259. Poir. Suppl. 5. 668. Torrey, Fl. U. S. 3

E. densum & *leptophyllum.* Raf. Prec. Découv. 41 & 42; Desv. Journ. Bo 271. Poir. Suppl. 5. 668. DC. Prodr. 3. 42 & 43. Don, Mill. 2. 681 & 682. & Wr. 234. Dietr. 2. 1292.

E. tenellum. Raf. ll. cc., & same citations. Hook. Fl. Bor.-Am. 1. 207.

E. lineare. Muhl. Cat. 39. Barton, Compend. Fl. Philad. 1. 183. Bi Bost. 2 ed. 147. Eat. & Wr. 233. Griseb. in Bot. Zeit. 10. 852. Lan Groenl. 133.

E. squamatum. Nutt. Genera, 1. 250. Spreng. Syst. 2. 234. Seringe, DC. 3. 43. Don, Mill. 2. 682. Beck, Bot. 116.

E. palustre, var. *albescens.* Richard. Frankl. Journ. 12. Cham. & Schle Linnæa, 2. 554. Schlecht. Fl. Lab. in Linnæa, 10. 96.

? *E. pubescens.* Presl, Rel. Haenk. 2. 29; fide Torr. & Gray, Fl. 1. 491.

E. palustre, var. *albiflorum.* Lehm. in Hook. Fl. Bor.-Am. 1. 207. Don 2. 682. Torr. & Gray, Fl. 1. 490. Torrey, Nicol. Rep. 150. Hook. in Lond. Bot. 6. 221. Wood, Cl.-Book, 351. Rothr. Pl. Wheeler, 39.

E. palustre. Gray, Manual, 1 ed. 135.

E. paniculatum. Nutt.; Torr. & Gray, Fl. 1. 490. Walp. Rep. 2. 92. in Lond. Journ. Bot. 6. 221. Newberry, Pac. R. Rep. 6. 74. Cooper, same, & 60. Gray, Am. Journ. Sci. 2. 33. 405; Proc. Acad. Philad. 1863, 61; Pro Acad. 8. 384. Anderson, Cat. Pl. Nev. 120. Boland. Cat. 12. Porter, Hayd 1870, 476; 1871, 483; Fl. Col. 43. Watson, King's Rep. 5. 103; Pl. Whe Coulter, Hayd. Rep. 1872, 767. Torrey, Bot. Wilkes, 297. Rothr. Pl. Wheel Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 327. Barbey, Brew. & Wat Calif. 1. 220; Monogr. Epilob. ined. **t. 8.**

E. roseum. Schreber, Fl. Lips. 147. See syn. in Seringe, DC. Prodr. Ledeb. Fl. Ross. 2. 110; Pritzel, Ind. Icon. Bot. 1. 403. — Bongard, Veg. Sitc Torr. & Gray, Fl. 1. 489. Rothr. Fl. Alask. 446. Grisebach, Bot. Zeit. 10. 8

E. spicatum. Lam. Fl. France, 1077; Dict. 2. 373; Ill. 2. 412, **t. 278.** S in Gren. & Godr. Fl. France, 1. 583; and under *E. angustifolium* in Willd 2. 313; Ledeb. Fl. Ross. 2. 105; Trautv. & Meyer, Fl. Ochot. 37; Pritzel, Ind Bot. 1. 402. — Persoon, 1. 409. Nutt. Genera, 1. 250. Torrey, Fl. U. S. 391; Rep. 89. DC. Prodr. 3. 40. Don, Mill. 2. 680. Beck, Bot. 116. Eat. & W Barbey, Brew. & Wats. Bot. Calif. 1. 218.

E. angustifolium. Linn. Spec. 347, var. β. Michx. Fl. 1. 223. Purs Bigel. Fl. Bost. 146. Schrank, Pfl. Lab. 15. Cham. & Schlecht. in Linnæa, Hook. Fl. Bor.-Am. 1. 205; Comp. Bot. Mag. 1. 25; Lond. Journ. Bot. 6. 220 gard, Veg. Sitch. 134. Meyer, Pl. Lab. 71. Schlecht. in Linnæa, 10. 96.

& Arn. Bot. Beechey, 123. Torr. & Gray, Fl. 1. 487; Pac. R. Rep. 2. 126. Dietr. 2. 1290. Torrey, Fl. N. Y. 1. 231; Nicol. Rep. 150; Bot. Wilkes, 296. Seller, Ann. & Mag. Nat. Hist. 16. 171. Gray, Pl. Fendl. 43; Proc. Acad. Philad. 1863, 61; Manual, 177; Proc. Am. Acad. 8. 383. Seem. Bot. Herald, 30 & 52. Engelm. Pl. Upp. Miss. 191. Tuckerman, Josselyn's Rarities, 88. Durand, Pl. Kane. in Journ. Acad. Philad. 1856, 191 (Kane's Exped. 2. 454). Newberry, Pac. R. Rep. 6. 74. Cooper, same, 12. 60. Chapman, 139. Hook. f. Arct. Pl. 291. Pl. Bourgeau, 256. Rothr. Fl. Alask. 446; Pl. Wheeler, 39. Boland. Cat. 12. Anderson, Cat. Pl. Nev. 120. Porter, Hayd. Rep. 1870, 476; 1871, 483; Fl. Col. 43. Watson, King's Rep. 5. 104; Pl. Wheeler, 9. Coulter, Hayd. Rep. 1872, 766.

? *E. pauciflorum.* Schrank, Pfl. Lab. 15. Meyer, Fl. Lab. 72. Schlecht. in Linnæa, 10. 96.

Chamænerium angustifolium. Spach, Hist. Veg. 4. 396. Lange, Pl. Groenl. 134.

E. suffruticosum. Nutt.; Torr. & Gray, Fl. 1. 488. Walp. Rep. 2. 90. Hook. in Lond. Journ. Bot. 6. 220. Coulter, Hayd. Rep. 1872, 767.

E. tetragonum. Linn. Spec. 494. See syn. in Ledeb. Fl. Ross. 2. 110; Grisebach, Bot. Zeit. 10. 854; Pritzel, Ind. Icon. Bot. 1. 403. — Michx. Fl. 1. 223. Richard. Frankl. Journ. 8. Spreng. Syst. 2. 233. Hook. Fl. Bor.-Am. 1. 206; Lond. Journ. Bot. 6. 220. Don, Mill. 2. 682. Beck, Bot. 117. Hook. & Arn. Bot. Beechey, 141. Torr. & Gray, Fl. 1. 489. Eat. & Wr. 234. Walp. Rep. 2. 91. Hook. f. in Fl. Antarct. 2. 270; Arct. Pl. 291. Cooper, Pac. R. Rep. 12. 60. Gray, Am. Journ. Sci. 2. 33. 405; Proc. Am. Acad. 8. 383. Wood, Cl.-Book, 351. Pl. Bourgeau, 256. Rothr. Fl. Alask. 446; Pl. Wheeler, 39. Watson, King's Rep. 5. 103, in part; Pl. Wheeler, 9. Porter, Hayd. Rep. 1871, 483; Fl. Col. 43. Coulter, Hayd. Rep. 1872, 767.

Var. glandulosum. Torr. & Gray, Fl. 1. 488. Torrey, Bot. Wilkes, 296.

E. glandulosum. Lehmann, Hook. Fl. Bor.-Am. 1. 206; Pug. Pl. Nov. 2. 14. Don, Mill. 2. 680. Eat. & Wr. 234. Dietr. 2. 1292.

E. Watsoni. Barbey, Brew. & Wats. Bot. Calif. 1. 219; Monogr. Epil. ined. t. 6.

E. alpestre, alpinum & alsinefolium; origanifolium.
angustifolium; spicatum.
angustissimum, ciliatum & densum; palustre.
divaricatum; coloratum.
glandulosum; tetragonum.
Hornemanni; alpinum.
E. leptophyllum, lineare & oliganthum; palustre.
pauciflorum; spicatum.
pubescens, rosmarinifolium & squamatum; palustre.
strictum; molle.
tenellum; palustre.
tetragonum; coloratum.
——— *?;* Franciscanum.

EUCHARIDIUM Breweri. Gray, Proc. Am. Acad. 6. 532. Brew. & Wats. Bot. Calif. 1. 232.

E. concinnum. Fisch. & Meyer, Ind. Sem. Petrop. 2. 11 (Hook. Comp. Bot. Mag. 2. 7; Ann. Sci. Nat. 2. 5. 184; Litt.-Ber. zu Linnæa, 1837, 105, & 7. 40 (Ann. Sci. Nat. 2. 16. 53; Litt.-Ber. 1841, 112). Lindl. Bot. Reg. 23, t. **1962**. Hook. Bot. Mag. t. **3589**. Hook. & Arn. Bot. Beechey, 340. Torr. & Gray, Fl. 1. 516. Lilja, Linnæa, 15. 260. Walp. Rep. 2. 90. Meyer, Sert. Petrop. t. **12**. Torrey, Pac. R. Rep. 4. 87. Boland. Cat. 12. Brew. & Wats. Bot. Calif. 1. 232.

E. grandiflorum. Fisch. & Meyer, Ind. Sem. Petrop. 7. 40 (& ll. cc.). Walp. Rep. 2. 90. Meyer, Sert. Petrop. t. **13**. Rev. Hort. 6. 298, f. **109**.

EULOBUS Californicus. Nutt.; Torr. & Gray, Fl. 1. 515. Torrey, Mex. Bound. 66. Brew. & Wats. Bot. Calif. 1. 221.

GAURA angustifolia. Michx. Fl. 1. 226. Persoon, 1. 409. Poir. Suppl. 2. 711. Pursh, 260. Elliott, 1. 445. James, Cat. 180. Seringe, DC. Prodr. 3. 44. Don, Mill. 2. 683. Hook. Comp. Bot. Mag. 1. 25. Spach, Monogr. Onagr. 58; Hist. Veg. 4. 382. Torr. & Gray, Fl. 1. 517. Eat. & Wr. 251. Dietr. 2. 1296. Chapman, 138. Wood, Cl.-Book, 354. Rothr. Syn. Gaurin. in Proc. Am. Acad. 6. 352.

G. biennis. Walter, 128.

G. fruticosa. Jacq. Icon. Pl. Rar. 3, **t. 457**; Collect. Bot. 1. 142. Willd. Spec. 2. 312. Poir. Suppl. 2. 711; Lam. Ill. 2. 423, **t. 281, f. 2.**

G. undulata. Desf. Cat. Par. 196.

G. biennis. Linn. Spec. 347. Hill, Veg. Syst. 11, **t. 11, f. 1.** Lam. Dict. 2. 614; Ill. 2. 422, **t. 281, f. 1.** Moench, Meth. 686. Ait. Hort. Kew. 2. 4. Curtis, Bot. Mag. **t. 389.** Schkuhr, Handb. 1. 324, **t. 105.** Gaertn. Fruct. **t. 127.** Willd. Spec. 2. 311. Michx. Fl. 1. 226. Barton, Bot. Appx. 26, **t. 16.** Persoon, 1. 409. Pursh, 260. Elliott, 1. 446. Torrey, Fl. U. S. 391; Fl. N. Y. 1. 236. Maund, Bot. Gard. 1, **t. 75.** Spreng. Syst. 2. 234. Seringe, DC. Prodr. 3. 44. Lehmann, Hook. Fl. 1. 209. Don, Mill. 2. 683. Beck, Bot. 117. Hook. Comp. Bot. Mag. 1. 25. Spach, Hist. Veg. 4. 381. Torr. & Gray, Fl. 1. 517, excl. var. Eat. & Wr. 251. Dietr. 2. 1296. Gray, Pl. Fendl. 47; Manual, 177. Parry, Pl. Minn. 612. Engelm. Pl. Upp. Miss. 192. Chapman, 138. Rothr. Syn. 351. Coulter, Hayd. Rep. 1872, 767.

? *Pleurandra alba.* Raf. Fl. Lud. 95.

Pleurostemon album. Raf. Adn. 1820. Seringe, DC. Prodr. 3. 64. Don, Mill. 2. 699.

G. coccinea. Nutt. in Fraser's Cat. 1813; Genera, 1. 249. Pursh, 733. Poir. Suppl. 5. 688. Bradbury, Cat. 336. James, Cat. 180; Long's Exped. 2. 333. Spreng. Syst. 2. 234. Torrey, Ann. Lyc. N. Y. 2. 200; Nicol. Rep. 150; Frem. Rep. 89 & 315; Emory's Rep. 140 & 408; Marcy's Rep. 285; Sitgr. Rep. 159; Pac. R. Rep. 4. 87; Mex. Bound. 66. Seringe, DC. Prodr. 3. 45. Lehm. in Hook. Fl. Bor.-Am. 1. 208. Don, Mill. 2. 683. Spach, Hist. Veg. 4. 382. Torr. & Gray, Fl. 1. 518; Pac. R. Rep. 2. 126 & 164. Eat. & Wr. 251. Dietr. 2. 1297. Nees, Pl. Neuwied, 9. Hook. in Lond. Journ. Bot. 6. 225. Engelm. in Wisliz. Rep. 3; Pl. Upp. Miss. 192. Gray, Pl. Wright. 1. 73 & 2. 59; Pac. R. Rep. 12. 43; Am. Journ. Sci. 2. 33. 405; Proc. Acad. Philad. 1863, 61. Pl. Bourgeau, 256. Rothr. Syn. 352; Pl. Wheeler, 40. Porter, Hayd. Rep. 1870, 476; 1871, 483; Fl. Col. 44. Coulter, Hayd. Rep. 1872, 767. Watson, Pl. Wheeler, 9.

Schizocarya (?) *crispa.* Spach, Monogr. Onagr. 58.

Var. **integerrima.** Torrey, Ann. Lyc. N. Y. 2. 200. Torr. & Gray, Fl. 1. 518. Nees, Pl. Neuwied, 10. Walp. Rep. 2. 97.

G. marginata. Lehmann, Hook. Fl. Bor.-Am. 1. 208; Pug. Pl. Nov. 2. 16. Don, Mill. 2. 683. Eat. & Wr. 251. Dietr. 2. 1297.

Var. **parvifolia.** Torr. & Gray, Fl. 1. 518. Walp. Rep. 2. 97. Gray, Pl. Wright. 1. 73.

G. epilobioides. HBK. Nov. Gen. & Spec. 6. 93. DC. Prodr. 3. 44. Don, Mill. 2. 683. Dietr. 2. 1296. Gray, Pl. Fendl. 46.

G. parvifolia. Torrey, l. c. Eat. & Wr. 251.

Var. **glabra.** Torr. & Gray, Fl. 1. 518. Walp. l. c.

G. glabra. Lehmann, Hook. Fl. Bor.-Am. 1. 209; Pug. Pl. Nov. 2. 16. Don, Mill. 2. 684. Eat. & Wr. 251. Dietr. 2. 1297.

rummondii. Torr. & Gray, Fl. 1. 519. Dietr. 2. 1297. Walp. Rep. 2. 97.
m. & Gray, Pl. Lindh. 36. Gray, Pl. Lindh. 190; Pl. Wright. 1. 73; Hall's
xas, 9. Torrey, Mex. Bound. 66. Rothr. Syn. Gaurin. 353. Young, Fl.
, 265.
hizocarya Drummondii. Spach, Monogr. Onogr. 62.
Ræmeriana. Scheele, Linnæa, 21. 579. Walp. Ann. 2. 526.

ipes. Spach, Monogr. Onagr. 59. Torr. & Gray, Fl. 1. 517. Dietr. 2. 1297.
. Rep. 2. 96. Scheele, Roem. Texas, 431. Chapman, 138. Rothr. Syn. Gau-
3. Gray, Manual, 177.
Michauxii. Spach, l. c. 59. Dietr. 2. 1297.
coccinea. Bertoloni, Bot. Misc. 11. 17.

major. Torr. & Gray, Fl. 1. 517, excl. syn.

nticulosa. Benth. Bot. Sulph. 15. Walp. Rep. 5. 670. (Lower California.)

ndheimeri. Engelm. & Gray, Pl. Lindh. 9. Walp. Ann. 2. 535. Lindl.
rn. Hort. Soc. 7. 270. Vilmorin, Rev. Hort. 3. 5. 41, t. **5**; 6. 202, f. **101.**
n, Fl. Garden, 3. 127, f. **292.** Rothr. Syn. Gaurin. 351. Wood, Bot. & Fl.
Gray, Hall's Pl. Texas, 9.
G. hirsuta. Scheele, Linnæa, 21. 580; fide Gray, Pl. Lindh. 191. Walp. l. c.

ngiflora. Spach, Monogr. Onagr. 59. Gray, Pl. Lindh. 36. Walp. Ann.
. Rothr. Syn. Gaurin. 351.
biennis, var. *Pitcheri.* Torr. & Gray, Fl. 1. 513. Torrey, Pac. R. Rep. 4. 87.
filipes, var. *major.* Torr. & Gray, Fl. 1. 517, in part.

acrocarpa. Rothrock, Syn. Gaurin. 353.
villosa. Gray, Pl. Wright. 2. 59. Torrey, Mex. Bound. 66.

rviflora. Dougl.; Lehmann in Hook. Fl. Bor.-Am. 1. 208; Pug. Pl. Nov.
Don, Mill. 2. 683. Hook. Bot. Mag. t. **3506**; Lond. Journ. Bot. 6. 225.
& Gray, Fl. 1. 519; Pac. R. Rep. 2. 164. Eat. & Wr. 251. Dietr. 2. 1297.
Rep. 2. 97. Engelm. & Gray, Pl. Lindh. 37. Gray, Pl. Fendl. 47; Pl. Lindh.
Pl. Wright. 2. 59; Proc. Acad. Philad. 1863, 61; Proc. Am. Acad. 8. 384.
, Emory's Rep. 140; Pac. R. Rep. 4. 87; Mex. Bound. 66; Bot. Wilkes, 299.
n. Pl. Upp. Miss. 192. Rothr. Syn. Gaurin. 354. Porter, Hayd. Rep. 1870,
1871, 483; Fl. Col. 46. Watson, King's Rep. 5. 113; Pl. Wheeler, 9. Coul-
ayd. Rep. 1872, 767. Young, Fl. Texas, 265. Brew. & Watson, Bot. Calif.

mollis. Nutt.; Torrey, Ann. Lyc. N. Y. 2. 200, not HBK. James, Long's
. 2. 264. Eat. & Wr. 251.
izocarya micrantha. Spach, Monogr. Onagr. 62.

uata. Nutt.; Seringe, DC. Prodr. 3. 44. Don, Mill. 2. 683. Spach, Monogr.
58. Torr. & Gray, Fl. 1. 518; Pac. R. Rep. 2. 126 & 164. Eat. & Wr. 251.
2. 1296. Engelm. & Gray, Pl. Lindh. 9 & 32. Gray, Pl. Lindh. 190; Pl.
t. 1. 72 & 2. 59; Hall's Pl. Texas, 9. Scheele, Roem. Texas, 431. Rothr.
53. A. H. Smith, Proc. Acad. Philad. 1867, 19. Young, Fl. Texas, 265.

ffulta. Engelm.; Gray, Pl. Lindh. 190; Pl. Wright. 1. 72 & 2. 59; Hall's Pl.
, 9. Walp. Ann. 2. 536. Torr. & Gray, Pac. R. Rep. 2. 164. Torrey, Mex.
. 66. Rothr. Syn. Gaurin. 352. Watson, Pl. Wheeler, 9.

petala. Cavanilles, Icon. Pl. 4. 66, t. **396, f. 1.** Persoon, 1. 409. Willd.
. 409. HBK. Nov. Gen. 6. 94. Seringe, DC. Prodr. 3. 44. Don, Mill.
. Spach, Monogr. Onagr. 56. Torr. & Gray, Fl. 1. 519. Dietr. 2. 1297.
Pl. Wright. 1. 72; Hall's Pl. Texas, 9. Rothr. Syn. Gaurin. 352.

G. hexandra. Ortega, Nov. Pl. Matrit. 14.

G. triangulata. Buckley, Proc. Acad. Philad. 1861, 454; fide Gray, sam 163.

G. villosa. Torrey, Ann. Lyc. N. Y. 2. 200. Torr. & Gray, Fl. 1. 518. Wr. 251. Walp. Rep. 2. 97. Engelm. in Wisliz. Rep. 4. Gray, Pl. Fendl. Wright. 1. 73 & 2. 59. Torrey, Marcy's Rep. 285; Pac. R. Rep. 4. 87. Roth Gaurin. 357.

G. —— ? Gray, Pl. Wright. 1. 73.

GAYOPHYTUM diffusum. Torr. & Gray, Fl. 1. 513. Walp. Rep. Torrey, Frem. Rep. 315. Hook. in Lond. Journ. Bot. 6. 224. Watson, King 5. 105. Porter, Hayd. Rep. 1871, 483. Coulter, same, 1872, 767. Brew. & Bot. Calif. 1. 221.

G. racemosum. Torr. & Gray, Fl. 1. 514. Walp. Rep. 2. 76. Hook. i Journ. Bot. 6. 225. Gray, Proc. Acad. Philad. 1863, 61. Watson, King 5. 105; Pl. Wheeler, 9. Porter, Hayd. Rep. 1871, 483; Fl. Col. 44. Coulter Rep. 1872, 767. Brew. & Wats. Bot. Calif. 1. 221.

G. Nuttallii. Torr. & Gray, Fl. 1. 514. Walp. Rep. 2. 76. Torrey, Pac. 4. 87. Anderson, Cat. Pl. Nev. 120. Gray, Proc. Am. Acad. 8. 384.

G. cæsium. Torr. & Gray, Fl. 1. 514. Walp. Rep. 2. 76. Gray, Pr Acad. 7. 340.

G. ramosissimum. Torr. & Gray, Fl. 1. 513. Walp. Rep. 2. 76. Hook. i Journ. Bot. 6. 224. Torrey, Stansb. Rep. 387; Bot. Wilkes, 299. Dura Utah, 164. Engelm. Pl. Upp. Miss. 192. Gray, Am. Journ. Sci. 2. 33. 405 derson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 105; Pl. Wheeler, 9. Hayd. Rep. 1871, 483; Fl. Col. 44. Coulter, Hayd. Rep. 1872, 767. Ro Wheeler, 40. Brew. & Wats. Bot. Calif. 1. 221.

Var. **deflexum.** Hook. in Lond. Journ. Bot. 6. 224. Gray, Proc. Acad. 1863, 61.

GODETIA albescens. Lindl. Bot. Reg. 27, Misc. 61, & 28, **t. 9.** Wal 2. 87. Brew. & Wats. Bot. Calif. 1. 229.

Œnothera purpurea. Bentham, Pl. Hartw. 310.

Œnothera albescens. Watson, Rev. Œnoth. in Proc. Am. Acad. 8. 597.

G. amœna. Lilja in Lindblom, Bot. Notis. 1839, 53; Linnæa, 15. 265. & Wats. Bot. Calif. 1. 230.

Œnothera amœna. Lehmann, Ind. Sem. h. Hamb. 1821, 8 (Litt.-Ber. zu 1828, 8); Nov. Stirp. Pug. 1. 23; Nov. Act. Acad. Leop. 14. 811, **t. 45.** Do 2. 687. Torr. & Gray, Fl. 1. 503. Regel, Gartenfl. 13. 193, **t. 439.** Watso Œnoth. 599. Torrey, Bot. Wilkes, 297.

Œnothera roseo-alba. Hornemann, Cat. Sem. Erf. 1824. Reichenb. Icon **t. 47 & 150.** Sweet, Brit. Fl. Gard. **t. 268.** Seringe, DC. Prodr. 3. 48. Bot. Gard. 8, **t. 365.** Dietr. 2. 1289.

Œnothera Lindleyi. Dougl.; Hook. Bot. Mag. **t. 2832.** Sweet, Brit. F 2 ser. **t. 19.** Don, Mill. 2. 688. Maund, Bot. Gard. 8, **t. 365.** Lehmann Fl. Bor.-Am. 1. 211. Lindl. Bot. Reg. **t. 1405.** Hook. & Arn. Bot. Beech & 342. Torr. & Gray, Fl. 1. 502. Eat. & Wr. 330. Dietr. 2. 1287. Bent Sulph. 14. Meyer, Ind. Sem. Petrop. 11, Suppl. 58. Wood, Bot. & Fl. 126. Proc. Am. Acad. 8. 384.

Œnothera bifrons. Lindl. Bot. Reg. 17, **t. 1405.**

G. Lehmanniana & Lindleyana. Spach, Monogr. Onagr. 72; Hist. Veg & 392.

G. rubicunda. Lindl. Bot. Reg. 22, t. **1856**, & under t. 1880. Walp. Rep. 2. 87. Wood, Bot. & Fl. 126.

G. vinosa. Lindl. Bot. Reg. 22, t. **1880**. Walp. l. c. Wood, l. c.

Œnothera rubicunda. Hook. & Arn. Bot. Beechey, 342. Torr. & Gray, Fl. 1. 502. Dietr. 2. 1287.

G. macrantha. Lilja, Lindb. Bot. Notis. 1839, 53; Linnæa, 15. 265 & 17. 110.

Œnothera vinosa. Torr. & Gray, Fl. 1. 503. Dietr. 2. 1287. Torrey, Pac. R. Rep. 7. 11. Cooper, same, 12. 61.

? *Œnothera arcuata.* Kellogg, Proc. Calif. Acad. 1. 58.

G. Nivertiana. Gouj. in Rev. Hort. 1872, 431, t.

G. biloba. Watson, Bot. Calif. 1. 231.

Œnothera tenella, var. *tenuifolia.* Bentham, Pl. Hartw. 310.

Œnothera biloba. Durand, Pl. Pratten. 87. Torrey, Pac. R. Rep. 4. 86. Watson, Rev. Œnoth. 599.

G. Bottæ. Spach, Monogr. Onagr. 73. Walp. Rep. 2. 88. Brew. & Wats. Bot. Calif. 1. 231.

Œnothera Bottæ. Torr. & Gray, Fl. 1. 505. Dietr. 2. 1285. Watson, l. c.

Œnothera Californica. Dietr. 2. 1288.

Œnothera rubicunda. Benth. Pl. Hartw. 310. Gray, Proc. Bost. Soc. 7. 146.

Œnothera tenella. Gray, l. c.

G. epilobioides. Watson, Bot. Calif. 1. 231.

Œnothera epilobioides. Nutt.; Torr. & Gray, Fl. 1. 511. Walp. Rep. 2. 78. Watson, Rev. Œnoth. 599.

Œnothera rubicunda. Torr. & Gray, Pac. R. Rep. 2. 121. Anderson, Cat. Pl. Nev. 120.

Œnothera tenella, var. *tenuifolia.* Torrey, Pac. R. Rep. 4. 86.

Œnothera vinosa. Torrey, Mex. Bound. 66.

Œnothera viminea. Watson, King's Rep. 5. 108.

Œnothera tenella. Gray, Proc. Am. Acad. 8. 384.

G. grandiflora. Lindl. Bot. Reg. 27, Misc. 61, & 28, t. **61**. Walp. Rep. 2. 87. Sweet, Ornam. Fl. Gard. 2, t. **74**. Lemaire, Jard. Fl. 3, t. **318**. Brew. & Wats. Bot. Calif. 1. 228.

Œnothera Whitneyi. Gray, Proc. Am. Acad. 7. 340 & 400. Hook. f. Bot. Mag. t. **5867**. Boland. Cat. 12. Gard. Chronicle, 1871, 103.

Œnothera grandiflora. Watson, Rev. Œnoth. 596.

G. hispidula. Watson, Bot. Calif. 1. 609.

Œnothera rubicunda. Durand, Pl. Pratten. 87.

Œnothera hispidula. Watson, Rev. Œnoth. 599.

G. lepida. Lindl. Bot. Reg. 22, t. **1849**. Walp. Rep. 2. 88. Brew. & Wats. Bot. Calif. 1. 229.

Œnothera lepida. Hook. & Arn. Bot. Beechey, 342. Torr. & Gray, Fl. 1. 504. Dietr. 2. 1287. Benth. Pl. Hartw. 310. Torrey, Pac. R. Rep. 4. 86. Cooper, same, 12. 61. Wood, Bot. & Fl. 126. Watson, Rev. Œnoth. 597.

Œnothera purpurea. Durand, Pl. Pratten. 88, in part.

Var. parviflora. Watson, Bot. Calif. 1. 229.

Œnothera decumbens. Dougl.; Hook. Bot. Mag. t. **2889**. Lindl. Bot. Reg. 15, t. **1221**. Lehm. in Hook. Fl. Bor.-Am. 1. 211. Don, Mill. 2. 688. Torr. & Gray, Fl. 1. 504. Eat. & Wr. 331. Dietr. 2. 1287. Durand, Pl. Pratten. 87.

G. decumbens. Spach, Monogr. Onagr. 68, t. **30**, f. **2**; Hist. Veg. 4. 388, t. **86**, f. **2**. Walp. Rep. 2. 88.

Œnothera viminea. Torrey, Pac. R. Rep. 4. 86, in part.
Œnothera densiflora, var. Gray, Proc. Am. Acad. 8. 384, in part.
Œnothera lepida, var. *parviflora.* Watson, Rev. Œnoth. 597.

Var. **Arnottii.** Watson, Bot. Calif. 1. 229.
Œnothera viminea, var. Hook. & Arn. Bot. Beechey, 342.
Œnothera Arnottii. Torr. & Gray, Fl. 1. 503.
G. Arnottii. Walp. Rep. 2. 88.
Œnothera lepida, var. *Arnottii.* Watson, Rev. Œnoth. 597.

G. purpurea. Watson, Bot. Calif. 1. 229.
Œnothera purpurea. Curtis, Bot. Mag. t. **352.** Willd. Spec. 2. 311. Perso 1. 400. Ait. f. Hort. Kew. 2. 344. Spreng. Syst. 2. 228. Maund, Bot. Gard. t. **79.** Seringe, DC. Prodr. 3. 49. Lehm. in Hook. Fl. Bor.-Am. 1. 211. D Mill. 2. 688. Hook. & Arn. Bot. Beechey, 341. Torr. & Gray, Fl. 1. 504. Eat. Wr. 331. Dietr. 2. 1287. Benth. Bot. Sulph. 15. Boland. Cat. 12. Gray, Pr Am. Acad. 8. 384, in part. Watson, Rev. Œnoth. 596.
Œnothera humilis. Donn, Ind. Hort. Cant. 41. Poir. Suppl. 4. 144.
G. Willdenowiana. Spach, Monogr. Onagr. 68; Hist. Veg. 4. 387.

G. quadrivulnera. Spach, Monogr. Onagr. 69; Hist. Veg. 4. 389. Walp. R 2. 88. Brew. & Wats. Bot. Calif. 1. 230.
Œnothera quadrivulnera. Dougl.; Lindl. Bot. Reg. 13, t. **1119.** Lehm. in Ho Fl. Bor.-Am. 1. 213. Don, Mill. 2. 684. Torr. & Gray, Fl. 1. 504. Eat. & Wr. 3 Dietr. 2. 1285. Cooper, Pac. R. Rep. 12. 61. Watson, Rev. Œnoth. 598. T rey, Bot. Wilkes, 297.
Œnothera tenella, var. *tenuifolia.* Hook. & Arn. Bot. Beechey, 342, in part. T & Gray, Fl. 1. 504.
Œnothera viminea. Torrey, Pac. R. Rep. 4. 86, in part.
Œnothera purpurea. Durand, Pl. Pratten. 88, in part.

G. Romanzovii. Spach, ll. cc. 70 & 390. Brew. & Wats. Bot. Calif. 1. 230.
Œnothera Romanzovii. Ledebour, Mém. Acad. Petersb. 8. 314, t. **11.** Horn Hort. Hafn. Suppl. 1. 133. Don in Lindl. Bot. Reg. 7, t. **562** (Spreng. Neue E deck. 3. 176). Link, Enum. 378. Spreng. Syst. 2. 228. Seringe, DC. Pr 3. 49. Lehm. in Hook. Fl. Bor.-Am. 1. 212. Don, Mill. 2. 688. Torr. & Gr Fl. 1. 503. Eat. & Wr. 331. Dietr. 2. 1287. Watson, Rev. Œnoth. 598.

G. tenella. Watson, Bot. Calif. 1. 230.
Œnothera tenella. Cav. Icon. 4. 66, t. **396, f. 2.** Ruiz & Pav. Fl. Peruv. 3. t. **316, fig. b.** Persoon, 1. 408. Poir. Suppl. 4. 141. Sims, Bot. Mag. t. **24** Spreng. Syst. 2. 228. Sweet, Brit. Fl. Gard. t. **167.** Seringe, DC. Prodr. 3. Don, Mill. 2. 687. Torr. & Gray, Fl. 1. 504, excl. var. Dietr. 2. 1287. Wats Rev. Œnoth. 598.
G. Cavanillesii. Spach, Monogr. Onagr. 71; Hist. Veg. 4. 390. Walp. R 2. 88. Gay, Fl. Chil. 2. 338.
Œnothera viminea, var. *parviflora.* Hook. & Arn. Bot. Beechey, 342. Tor Pac. R. Rep. 4. 86.
Œnothera viminea. Torrey, Pac. R. Rep. 4. 86, in part.
Œnothera purpurea. Gray, Proc. Am. Acad. 8. 384, in part.

G. viminea. Spach, Monogr. Onagr. 69; Hist. Veg. 4. 388. Walp. Rep. 2. Brew. & Wats. Bot. Calif. 1. 230.
Œnothera viminea. Dougl.; Hook. Bot. Mag. t. **2873.** Lindl. Bot. Reg. t. **1220.** Lehm. in Hook. Fl. Bor.-Am. 1. 211. Don, Mill. 2. 688. Maund, B Gard. 8, t. **362,** & 13, t. **581.** Torr. & Gray, Fl. 1. 503. Eat. & Wr. 330. Di

2. 1287. Torrey, Pac. R. Rep. 4. 86 in part, & 7. 11; Mex. Bound. 66. Boland. Cat. 12. Watson, Rev. Œnoth. 598.

? *Œnothera tenella*, var. *tenuifolia*. Lindl. Bot. Reg. 19, **t. 1587.**

Var. **intermedia.** Kellogg, Proc. Calif. Acad. 1. 60.

G. Williamsoni. Watson, Bot. Calif. 1. 230.

G. Lindleyi, var. Durand & Hilgard, Journ. Acad. Philad. 3. 39.

Œnothera Williamsoni. Dur. & Hilg. in Pac. R. Rep. 5. 7, **t. 5.** Watson, Rev. Œnoth. 597.

G. Arnottii; lepida.
Cavanillesii; tenella.
decumbens; lepida.
Lindleyi; Williamsoni.

G. Lehmanniana, Lindleyana, macrantha, Nivertiana, rubicunda & venosa: amœna.
Willdenowiana; purpurea.

HETEROGAURA Californica. Rothrock, Syn. Gaurin. in Proc. Am. Acad. 6. 354. Brew. & Wats. Bot. Calif. 1. 234.

Gaura heterandra. Torrey, Pac. R. Rep. 4. 87.

JUSSIÆA decurrens. DC. Prodr. 3. 56. Don, Mill. 2. 694. Torr. & Gray, Fl. 1. 521. Dietr. 2. 1294. Engelm. & Gray, Pl. Lindh. 9. Chapman, 140. Grisebach, Fl. Brit. W. Ind. 272. A. H. Smith, Proc. Acad. Philad. 1867, 19. Gray, Manual, 180; Hall's Pl. Texas, 9. Micheli, Mart. Fl. Bras. fasc. 67, 160, **t. 31,** & syn.

Ludwigia decurrens. Walter, 89. Poir. Suppl. 3. 513. Pursh, 111. Roem. & Schult. Syst. 3. 326. Spreng. Syst. 1. 445. Elliott, 1. 217. Eat. & Wr. 306.

Ludwigia jussiæoides. Michx. Fl. 1. 89, not Linn. Persoon, 1. 145.

J. erecta. Abbott, Insects, **t. 40**; not Linn. Spreng. Syst. 2. 236, in part. Nutt. Genera, 1. 279. Hook. Comp. Bot. Mag. 1. 26. Eat. & Wr. 289.

Ludwigia uniflora. Raf. Med. Rep. 5. 356. Roem. & Schult. Syst. 3. 328. Torrey, Fl. U. S. 181. Eat. & Wr. 305.

Œnothera alata. Raf. Fl. Lud. 95. DC. Prodr. 3. 46. Don, Mill. 2. 684.

J. tenuifolia. Nutt. in Am. Journ. Sci. 5. 294. Don, Mill. 2. 693. Dietr. 2. 1293. Eat. & Wr. 289.

Ismardia uniflora. Beck, Bot. 120.

Diplandra decurrens, compressa, pumila, montana, ovata & heterophylla. Raf. Autikon Bot. 35, 36.

Œnothera paludosa. Featherman, Rep. Louisiana Univ. 1870, 71.

J. octonervia. Lam. Dict. 3. 332; Ill. 2. 422, **t. 280, f. 1.** See syn. in Grisebach, Fl. Brit. W. Ind. 273, under *J. suffruticosa;* Wright, in Journ. Linn. Soc. 10. 479, under *J. salicifolia;* Micheli, l. c. 170.

J. occidentalis. Nutt.; Torr. & Gray, Fl. 1. 521. Walp. Rep. 2. 72. Engelm. & Gray, Pl. Lindh. 37. Young, Fl. Texas, 269.

J. Peruviana. Linn. Spec. 388. See syn. in Grisebach, l. c. 273, under *J. hirta,* Vahl; Micheli, l. c. 151.

J. pilosa. HBK. Nov. Gen. 6. 101, **t. 532.** DC. Prodr. 3. 53. See syn. in Grisebach, l. c. 272, under *J. variabilis,* Mey.; Wright, l. c. 477; Micheli, l. c. 164.

J. leptocarpa. Nutt. Gen. 1. 279. Spreng. Syst. 2. 232. DC. Prodr. 3. 53. Don, Mill. 2. 691. Hook. Comp. Bot. Mag. 1. 25. Torr. & Gray, Fl. 1. 521. Eat. & Wr. 289. Chapman, 140. Wood, Cl.-Book, 352; Bot. & Fl. 125. Smith, Proc. Acad. Philad. 1867, 19.

Adenola glauca. Raf. Aut. Bot. 37.

J. repens. Linn. Mant. 381. See syn. in Wight & Arn. Prodr. Ind. Or. 1 Grisebach, l. c. 272; Micheli, l. c. 166, **t. 34, f. 2.** — DC. Prodr. 3. 54. Hook Misc. 3. 312, **t. 40.** Torr. & Gray, Fl. 1. 520. Torrey, Mex. Bound. 66; Wilkes, 300. Gray, Manual, 180; Hall's Pl. Texas, 9. Smith, l. c.

J. grandiflora, var. β. Hook. Comp. Bot. Mag. 1. 25.

Adenola longipes. Raf. Aut. Bot. 37.

J. Boydiana. Featherman, Rep. Louisiana Univ. 1870, 73; fide Gray Journ. Sci. 3. 2. 375.

Var. **grandiflora.** Micheli, l. c. 168, & syn.

J. grandiflora. Michx. Fl. 1. 267. Persoon, 1. 469. Poir. Suppl. 3. 198. 304. Raf. Fl. Lud. 96. Nutt. Genera, 1. 279. Sims, Bot. Mag. t. 2122. 1 1. 480. Turpin, Dict. Sci. Nat. 24. 300, **t. 218.** Spreng. Syst. 2. 232. DC. 3. 53. Don, Mill. 2. 691. Hook. Comp. Bot. Mag. 1. 25. Spach, Hist 4. 344. Torr. & Gray, Fl. 1. 521. Eat. & Wr. 691. Dietr. 2. 1296. Cha 140. Wood, Cl.-Book, 352.

Adenola grandiflora. Raf. Aut. Bot. 37.

Var. **Californica.** Watson, Bot. Calif. 1. 217.

LUDWIGIA alata. Elliott, 1. 212 (Spreng. Neue Entdeck. 2. 192). Rc Schult. Syst. 3, Mant. 254. Dietr. 1. 508. Chapman, 142. Wood, Cl.-Boo Bot. & Fl. 128.

Isnardia alata. DC. Prodr. 3. 61. Don, Mill. 2. 698. Eat. & Wr. 285.

Isnardia microcarpa. Hook. Comp. Bot. Mag. 1. 26.

L. alternifolia. Linn. Spec. 118. Hill, Veg. Syst. 10, **t. 46, f. 1.** Ait. Hort 1. 162. Lam. Dict. 3. 614; Ill. 1. 312, **t. 77.** Gaertn. Fruct. 1. 158, **t. 31** Willd. Spec. 1. 672. Elliott, 1. 217. Bigel. Fl. Bost. 2 ed. 60. Torr. & Gr 1. 522. Dietr. 1. 508. Eat. & Wr. 305. Torrey, Fl. N. Y. 1. 237. Gr. Fendl. 47; Manual, 180. Chapman, 140.

L. ramosissima. Walter, 89.

L. macrocarpa. Michx. Fl. 1. 89. Persoon, 1. 146. Pursh, 110. Rc Schult. Syst. 3. 326. Barton, Fl. N. Am. 1. 49, **t. 14.** Torrey, Fl. U. Spreng. Syst. 1. 445.

Rhexia linearifolia. Poir. Dict. 6. 2. Pursh, 259. Nutt. Genera, 1. 244. 1. 440. Eat. & Wr. 391.

L. aurantiaca. Raf. Med. Rep. 5. 353; Desv. Journ. Bot. 1. 223. Poir. 5. 722. Roem. & Schult. Syst. 3. 228. Don, Mill. 2. 698. Dietr. 1. 509.

? *L. salicifolia.* Poir. Suppl. 3. 512.

L. microcarpa. Link, Enum. 141.

Isnardia alternifolia. DC. Prodr. 3. 60. Hook. Fl. 1. 214. Don, Mill. Beck, Bot. 119. Hook. Comp. Bot. Mag. 1. 26.

? *L. pruinosa.* Raf. Aut. Bot. 38.

L. arcuata. Walter, 89. Torr. & Gray, Fl. 1. 526. Chapman, 142. Gray ual, 181.

L. pedunculosa. Michx. Fl. 1. 88. Persoon, 1. 145. Poir. Suppl. 3. 511. 111. Roem. & Schult. Syst. 3. 325. Elliott, 1. 215. Spreng. Syst. 1. 445. 1. 508. Eat. & Wr. 305.

Isnardia pedunculosa. DC. Prodr. 3. 60. Don, 2. 697.

L. capitata. Michx. Fl. 1. 90. Persoon, 1. 146. Poir. Suppl. 3. 512. Pur Roem. & Schult. Syst. 3. 327. Elliott, 1. 214. Spreng. Syst. 1. 445. Torr. Fl. 1. 525. Dietr. 1. 508. Eat. & Wr. 305. Chapman, 142. Wood, Cl.-Boo Bot. & Fl. 128.

L. suffruticosa. Walter, 90.

Isnardia capitata. DC. Prodr. 2. 60. Don, Mill. 2. 697.

L. cylindrica. Elliott, 1. 213. Roem. & Schult. Syst. 3². 254. Spreng. Neue Entdeck. 2. 193; Syst. 1. 446. Torr. & Gray, Fl. 1. 524. Dietr. 1. 508. Chapman, 141. Gray, Manual, 181; Hall's Pl. Texas, 9.

? *L. glandulosa.* Walter, 88.

L. heterophylla. Poir. Suppl. 3. 512. Roem. & Schult. Syst. 3. 327.

Isnardia cylindrica. DC. Prodr. 3. 61. Don, Mill. 2. 698. Hook. Comp. Bot. Mag. 1. 26. Eat. & Wr. 285.

Var. (?) **brachycarpa.** Torr. & Gray, Fl. 1. 524. Gray, Hall's Pl. Texas, 9.

Jussiæa brachycarpa. Lam. Dict. 3. 331.

L. hirtella. Raf. Desv. Journ. Bot. 1. 223; Med. Rep. 5. 358; Aut. Bot. 38. Poir. Supp. pl. 5. 722. Roem. & Schult. Syst. 3. 327. Torr. & Gray, Fl. 1. 522. Walp. Rep. 2. 74. Engelm. & Gray, Pl. Lindh. 9. Chapman, 141. Gray, Manual, 180; Hall's Pl. Texas, 9.

L. hirsuta. Pursh, 110. Hook. Comp. Bot. Mag. 1. 26. Dietr. 1. 508.

L. pilosa. Elliott, 1. 216. Spreng. Syst. 1. 445. Torrey, Fl. U. S. 181.

L. permollis. Barton, Fl. Philad. 1. 52.

Isnardia hirsuta, var. *permollis.* DC. Prodr. 3. 60.

L. lanceolata. Elliott, 1. 213. Spreng. Neue Entdeck. 2. 192; Syst. 1. 446. Roem. & Schult. Syst. 3². 254. Dietr. 1. 509. Chapman, 142. Wood, Bot. & Fl. 128.

Isnardia lanceolata. DC. Prodr. 3. 61. Don, Mill. 2. 698. Eat. & Wr. 285.

L. linearis. Walter, 89. Pursh, 110. Roem. & Schult. Syst. 3. 325. Elliott, 1. 215. Spreng. Syst. 1. 445. Torr. & Gray, Fl. 1. 523. Dietr. 1. 508. Eat. & Wr. 306. Chapman, 141. Gray, Manual, 181; Hall's Pl. Texas, 9.

L. angustifolia. Michx. Fl. 1. 88. Persoon, 1. 145. Poir. Suppl. 3. 513.

Isnardia linearis. DC. Prodr. 3. 60. Don, Mill. 2. 697. Hook. Comp. Bot. Mag. 1. 26.

Var. **puberula.** Engelm. & Gray, Pl. Lindh. 9.

L. linifolia. Poir. Suppl. 3. 513. Roem. & Schult. l. c. Torr. & Gray, Fl. 1. 523. Walp. Rep. 2. 75. Chapman, 141. Wood, Cl.-Book, 355; Bot. & Fl. 127.

L. microcarpa. Michx. Fl. 1. 88. Persoon, 1. 146. Juss. Ann. Mus. 3. 473 (Koen. Ann. Bot. 1. 540). Elliott, 1. 212. Spreng. Syst. 1. 446. Torr. & Gray, Fl. 1. 525. Dietr. 1. 508. Chapman, 142. Wood, Cl.-Book, 356; Bot. & Fl. 128.

Isnardia microcarpa. Poir. Suppl. 3. 188. Roem. & Schult. Syst. 3. 477. DC. Prodr. 3. 61. Don, Mill. 2. 698. Eat. & Wr. 285. Griseb. Fl. Brit. W. Ind. 271.

L. glandulosa. Pursh, 111.

L. natans. Elliott, 1. 581. Torr. & Gray, Fl. 1. 526. Eat. & Wr. 306. Walp. Rep. 2. 75. Gray, Pl. Lindh. 190; Pl. Wright. 1. 72; Hall's Pl. Texas, 9. Torrey, Pac. R. Rep. 4. 87; Mex. Bound. 66. Chapman, 142. Wood, Cl.-Book, 356; Bot. & Fl. 27. — Referred to *L. repens*, Swartz (as *Isnardia repens*, DC.), by Grisebach, Fl. Brit. W. Ind. 271.

L. fluitans. Scheele, Linnæa, 21. 580.

L. palustris. Elliott, 1. 211. See syn. in Willd. Spec. 1. 680, as *Isnardia.* — Torr. & Gray, Fl. 1. 525. Dietr. 1. 508. Torrey, Fl. N. Y. 1. 238. Gray, Pl. Fendl. 47; Pl. Lindh. 190; Manual, 181; Proc. Am. Acad. 8. 384; Hall's Pl. Texas, 9. Engelm. Pl. Upp. Miss. 192. Chapman, 142. Brew. & Wats. Bot. Calif. 1. 217.

Isnardia palustris. Linn. Spec. 120. Ait. Hort. Kew. 1. 164. Lam. Dict. 3. 313; Ill. 1. 312, t. 77. Schkuhr, Handb. 1. 84, t. 25. Persoon, 1. 146. Bigel. Fl. Bost. 61.

Nutt. Genera, 1 98. Roem. & Schult. Syst. 3. 476. Torrey, Fl. U. S. 1. 182. Fl. Bor.-Am. 1. 215; Comp. Bot. Mag. 1. 26. Beck, Bot. 120. Eat. & W Griseb. Fl. Brit. W. Ind. 271.

L. apetala. Walter, 89.

L. nitida. Michx. Fl. 1. 87. Juss. Ann. Mus. 3. 473 (Koen. Ann. Bot. 1 Persoon, 1. 145. Pursh, 111. Spreng. Syst. 1. 445.

Isnardia nitida. Poir. Suppl. 3. 188.

? *Peplis Portula.* Schrank, Pfl. Lab. 14. Meyer, Pl. Lab. 73.

Isnardia palustris, var. *Americana.* DC. Prodr. 3. 61. Don, Mill. 2. 698.

Isnardia ascendens. Hall; Eat. & Wr. 285.

L. pilosa. Walter, 89. Torr. & Gray, Fl. 1. 524. Eat. & Wr. 305. Ch 141. Wood, Cl.-Book, 355; Bot. & Fl. 127.

? *L. rudis.* Walter, 89.

L. hirsuta. Lam. Dict. 3. 614; Ill. 1. 313. Willd. Spec. 1. 673.

L. mollis. Michx. Fl. 1. 90. Juss. ll. cc. Persoon, 1. 146. Pursh, 111. 1. 214. Spreng. Syst. 1. 445. Dietr. 1. 508. Eat. & Wr. 305.

Isnardia mollis. Poir. Suppl. 3. 188. Roem. & Schult. Syst. 3. 476. DC. 3. 60. Don, Mill. 2. 697. Hook. Comp. Bot. Mag. 1. 26.

Isnardia hirsuta. Poir., Roem. & Schult., DC., & Don, ll. cc. Beck, Bot.

L. polycarpa. Short & Peter, Pl. Kentucky, Suppl. 2. 7. Torr. & G 1. 525. Eat. & Wr. 306. Walp. Rep. 2. 75. Lesqx. Fl. Ark. 360. Gray ual, 180.

L. spathulata. Torr. & Gray, Fl. 1. 526. Walp. Rep. 2. 75. Chapma Wood, Cl.-Book, 356; Bot. & Fl. 127.

L. sphærocarpa. Elliott, 1. 213. Spreng. Neue Entdeck. 2. 193. Roem. & Syst. 3². 254. Spreng. Syst. 1. 446. Torr. & Gray, Fl. 1. 524. Dietr. Torrey, Fl. N. Y. 1. 238, t. 29. Chapman, 141. Gray, Manual, 180.

Isnardia sphærocarpa. DC. Prodr. 3. 61. Don, Mill. 2. 698. Eat. & Wr.

L. virgata. Michx. Fl. 1. 89. Persoon, 1. 145. Poir. Suppl. 3. 512. Pur Roem. & Schult. Syst. 3. 327. Elliott, 1. 216 ? Spreng. Syst. 1. 445. Gray, Fl. 1. 523. Dietr. 1. 508. Chapman, 141. Wood, Cl.-Book, 355; Fl. 127.

? *L. alternifolia.* Walter, 89.

? *L. tuberosa.* Raf. Ann. Nat. 15.

Isnardia virgata. DC. Prodr. 3. 60. Don, Mill. 2. 697. Hook. Comp. Bo 1. 26.

? *L. juncea.* Raf. Aut. Bot. 38.

L. alternifolia; virgata.
angustifolia; linearis.
apetala; palustris.
aurantiaca; alternifolia.
decurrens; Jussiæa decurrens.
fluitans; natans.
glandulosa; cylindrica, microcarpa.
hirsuta; hirtella, pilosa.
juncea; virgata.
jussiæoides; Jussiæa decurrens.
macrocarpa & microcarpa; alternifolia.
L. mollis; pilosa.
nitida; palustris.
pedunculosa; arcuata.
permollis & pilosa; hirtella.
pruinosa & ramosissima; altern
rudis; pilosa.
salicifolia; alternifolia.
suffruticosa; capitata.
tuberosa; virgata.
uniflora; Jussiæa decurrens.

ŒNOTHERA albicaulis. Nutt. in Fraser's Cat. 1813; Genera, 1. 245. Bradbury, Cat. 336. James, Cat. 179. Spreng. Syst. 2. 228. Torrey, Ann. Lyc. N. Y. 2. 201; Nicol. Rep. 150; Frem. Rep. 89 & 315; Emory's Rep. 140; Stansb. Rep. 387; Pac. R. Rep. 4. 86; Mex. Bound. 65; Bot. Wilkes, 207. Lehmann, Hook. Fl. Bor.-Am. 1. 210. Don, Mill. 2. 687. Torr. & Gray, Fl. 1. 495; Pac. R. Rep. 2. 164. Dietr. 2. 1287. Eat. & Wr. 330. Walp. Rep. 2. 80; Ann. 4. 677. Hook. in Lond. Journ. Bot. 6. 223. Gray, Pl. Wright. 1. 69 & 2. 56; Pl. Thurb. 300; Pac. R. Rep. 12. 43; Am. Journ. Sci. 2. 33. 405, in part, & 34. 333; Proc. Am. Acad. 8. 384. Durand, Fl. Utah, 164. Engelm. Pl. Upp. Miss. 191; Am. Journ. Sci. 2. 34. 334. Cooper, Pac. R. Rep. 12. 52. Pl. Bourgeau, 256. Porter, Hayd. Rep. 1870, 476; 1871, 483; Fl. Col. 44. Watson, King's Rep. 5. 106; Revis. Œnoth. in Proc. Am. Acad. 8. 582, excl. var. *Californica;* Pl. Wheeler, 9. Coulter, Hayd. Rep. 1872, 767. Brew. & Wats. Bot. Calif. 1. 223.

Œ. pallida. Lindl. Bot. Reg. 14, t. **1142**. Lehm. in Hook. Fl. Bor.-Am. 1. 210. Don, Mill. 2. 687. Torr. & Gray, Fl. 1. 495. Eat. & Wr. 330. Dietr. 2. 1287. Walp. Rep. 2. 80. Hook. in Lond. Journ. Bot. 6. 222.

Œ. Nuttallii. Sweet, Hort. Brit. 2 ed. 199.

Baumannia Nuttalliana & Douglasiana. Spach, Hist. Veg. 4. 352.

Anogra Nuttalliana & Douglasiana. Spach, Monogr. Onagr. 20 & 21.

Œ. pinnatifida, var. *integrifolia.* Gray, Pl. Fendl. 44. Torr. Pac. R. Rep. 7. 11.

Var. runcinata. Engelm. in Am. Journ. Sci. 2. 34. 334. Watson, l. c. 582.

Œ. pinnatifida. Gray, Pl. Fendl. 44, in part. Torrey, Emory's Rep. 140.

Var. brevifolia. Engelm. l. c. 335. Watson, l. c.

Var. (?) **decumbens.** Watson, Am. Naturalist, 9. 270.

Œ. alyssoides. Hook. & Arn. Bot. Beechey, 340. Torr. & Gray, Fl. 1. 511; Pac. R. Rep. 2. 121. Hook. Icon. t. **339**. Torrey, Frem. Rep. 315, in part. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 111; Rev. Œnoth. 591; Pl. Wheeler, 9. Brew. & Wats. Bot. Calif. 1. 226.

Sphærostigma alyssoides. Walp. Rep. 2. 78.

Var. villosa. Watson, Rev. Œnoth. 591. Brew. & Wats. l. c. 227.

Œ. scapoidea. Torrey, Stansb. Rep. 387, in part.

Var. minutiflora. Watson, l. c. Brew. & Wats. l. c.

Œ. andina. Nutt.; Torr. & Gray, Fl. 1. 512. Watson, King's Rep. 5. 112; Rev. Œnoth. 594. Coulter, Hayd. Rep. 1872, 767. Torrey, Bot. Wilkes, 298. Brew. & Wats. Bot. Calif. 1. 226.

Sphærostigma andina. Walp. Rep. 2. 79.

Œ. arborea. Kellogg, Proc. Calif. Acad. 2. 32. Watson, Rev. Œnoth. 596. (Lower California.)

Œ. biennis. Linn. Spec. 346. Hill, Veg. Syst. 9. 4, t. **3**, f. **2**. Oeder, Fl. Dan. 3, t. **446**. Ait. Hort. Kew. 2. 2. Plenck, Icon. Pl. Med. 3, t. **295**. Lam. Ill. 2. 421, t. **279**, f. **1**; Dict. 4. 550. Willd. Spec. 2. 306. Michx. Fl. 1. 224. Persoon, 1. 407. Pursh, 261. Bigel. Fl. Bost. 90. Nutt. Genera, 1. 245. Elliott, 1. 441. James, Long's Exped. 2. 343. Torrey, Fl. U. S. 387; Ann. Lyc. N. Y. 2. 201; Fl. N. Y. 1. 234; Nicol. Rep. 150; Frem. Rep. 89; Sitgr. Rep. 159; Bot. Wilkes, 297. Spreng. Syst. 2. 227. Seringe, DC. Prodr. 3. 46. Hook. Fl. Bor.-Am. 1. 209; Comp. Bot. Mag. 1. 25. Don, Mill. 2. 685. Beck, Bot. 118. Hook. & Arn. Bot. Beechey, 141. Torr. & Gray, Fl. 1. 492. Eat. & Wr. 330. Ledeb. Fl. Ross. 2. 112, with syn. Gray, Pl. Fendl. 43; Pac. R. Rep. 12. 43; Ives's Rep. 11; Manual, 178. Parry, Pl. Minn. 612. Engelm. Pl. Upp. Miss. 192. Tuckerman, Josselyn's Rarities, 87. Cooper, Pac. R. Rep. 12. 61. Chapman, 138. Pl. Bourgeau, 256. An-

derson, Cat. Pl. Nev. 120. Porter, Hayd. Rep. 1870, 476; 1871, 483; Fl. Watson, King's Rep. 5. 106; Rev. Œnoth. 579; Pl. Wheeler, 9. Coulter, Rep. 1872, 767. Rothr. Pl. Wheeler, 39. Brew. & Wats. Bot. Calif. 1. 223.

Œ. parviflora. Linn. Spec. 2 ed. 492. Hill, Veg. Syst. 11, **t. 9, f. 3.** Ait Kew. 2. 2. Lam. Dict. 4. 551. Willd. Spec. 2. 306. Persoon, 1. 408. Pur Torrey, Fl. U. S. 388. Spreng. Syst. 2. 227. Seringe, DC. Prodr. 3. 47. Mill. 2. 685. Beck, Bot. 118. Eat. & Wr. 330. Dietr. 2. 1286.

Onagra biennis. Scopoli, Fl. Carn. 2 ed. n. 451. Moench, Meth. 675. Fruct. **t. 32.**

Œ. gauroides. Hornem. Hort. Hafn. 362. Seringe, DC. Prodr. 3. 52. Mill. 2. 686. Dietr. 2. 1286.

? *Onosuris acuminata.* Raf. Fl. Lud. 96. Seringe, DC. Prodr. 3. 64. Do 2. 700.

Onagra vulgaris & chrysantha. Spach, l. c. 33 & 35; Hist. Veg. 4. 302.

Var. **grandiflora.** Lindl. Bot. Reg. 19, **t. 1604.** Torr. & Gray, Fl. 1. 49 precht, Bull. Acad. Petersb. 14. 237 (Bull. Soc. Bot. Fr. 3. 437). Gray, M 178. Watson, King's Rep. 5. 106; Rev. Œnoth. 579. Buchan, Can. Nat 14. 294. Brew. & Wats. Bot. Calif. 1. 223.

Œ. grandiflora. Ait. Hort. Kew. 2. 2. Bartram, Travels, 406. Lam 4. 554. Willd. Spec. 2. 306. St. Hil. Pl. France, 2, **t. 130.** Pursh, 261. Bot. Mag. **t. 2068.** Elliott, 1. 442. Barton, Fl. N. Am. 1. 21, **t. 6.** Tor U. S. 388. Spreng. Syst. 2. 227. Seringe, DC. Prodr. 3. 46. Don, Mill Beck, Bot. 118. Eat. & Wr. 330. Dietr. 2. 1285. Griseb. Pl. Lorentz. 94.

Œ. suaveolens. Desf. Tabl. 169. Persoon, 1. 408. Poir. Suppl. 4. 141. DC. Prodr. 3. 46. Don, Mill. 2. 685. Eat. & Wr. 332. Dietr. 2. 1285.

Œ. Lamarckiana. Seringe, DC. Prodr. 3. 46. Don, Mill. 2. 685. Eat 332. Dietr. 2. 1285. Lemaire, Ill. Hort. 9, **t. 318.**

Var. **muricata.** Lindl. Bot. Reg. 19, under t. 1604. Torr. & Gray, F Gray, Manual, 178.

Œ. muricata. Linn. Syst. 12 ed. 263. Murray, Comm. Goett. 6. 24, **t.** Dict. 4. 551. Willd. Spec. 2. 307. Persoon, 1. 408. Ait. f. Hort. Kew Pursh, 261. Elliott, 1. 441. Hornem. Fl. Dan. 10, **t. 1752.** Torrey, Fl. Seringe, DC. Prodr. 3. 47. Don, Mill. 2. 685. Beck, Bot. 118. Eat. & Ruprecht, Bull. Acad. Petersb. 1856, 14. 237 (Bull. Soc. Bot. France, 3. 4

Onagra muricata. Moench, Meth. 675.

Var. **canescens.** Torr. & Gray, Fl. 1. 492. Gray, Pl. Fendl. 43. Pac. R. Rep. 6. 74.

? *Œ. pubescens.* Nees, Pl. Neuwied, 9.

Var. **hirsutissima.** Gray, Pl. Fendl. 43; Pl. Wright. 1. 69 & 2. 56 Mex. Bound. 65. Watson, Rev. Œnoth. 579. Brew. & Wats. Bot. Calif

Œ. odorata ? Hook. & Arn. Bot. Beechey, 343.

Œ. Hookeri. Torr. & Gray, Fl. 1. 493. Walp. Rep. 2. 81.

Œ. biennis. Torrey, Emory's Rep. 140; Mex. Bound. 65. Gray, Soc. Nat. Hist. 7. 146.

Var. **cruciata.** Torr. & Gray, Fl. 1. 492. Gray, Manual, 178. Wats

Œ. cruciata. Nutt.; Don, Mill. 2. 686.

Œ. bistorta. Nutt.; Torr. & Gray, Fl. 1. 508. Torrey, Pac. R. Rep. Bound. 66. Watson, Rev. Œnoth. 592. Brew. & Wats. Bot. Calif. 1.

? *Holostigma Bottæ.* Spach, Monagr. Onagr. 16.

Sphærostigma bistorta. Walp. Rep. 2. 77.

Œ. cheiranthifolia. Gray, Ives's Rep. 12.

Var. (?) **Veitchiana.** Hook. Bot. Mag. t. **5078** (Gard. Chron. 1858, 844). *L'Hort.* Fr. 1859, t. **3.** Journ. d'Hort. 3, t. **2.** Watson, l. c. 593. Brew. & Wats. Bot. Calif. 1. 225.

Œ. graciliflora. Torrey, Pac. R. Rep. 4. 87.

Œ. Boothii. Dougl.; Lehm. in Hook. Fl. Bor.-Am. 1. 213. Don, Mill. 2. 684. Spach, Monogr. Onagr. 16. Torr. & Gray, Fl. 1. 500. Eat. & Wr. 331. Dietr. 2. 1285. Watson, King's Rep. 5. 110; Rev. Œnoth. 591; Pl. Wheeler, 9. Brew. & Wats. Bot. Calif. 1. 227.

Œ. pygmæa. Dougl.; Lehm. in Hook. Fl. Bor.-Am. 1. 213. Don, Mill. 2. 685. Spach, Monogr. Onagr. 16. Eat. & Wr. 331. Dietr. 2. 1285.

Sphærostigma Boothii. Walp. Rep. 2. 77.

Œ. brachycarpa. Gray, Pl. Wright. 1. 70 & 2. 57; Proc. Am. Acad. 8. 384. Torrey, Mex. Bound. 65. Walp. Ann. 4. 676. Watson, Rev. Œnoth. 586.

? *Œ. marginata*, var. *purpurea.* Watson, King's Rep. 5. 108. Porter, Hayd. Rep. 1871, 483. Coulter, same, 1872, 767.

Œ. breviflora. Torr. & Gray, Fl. 1. 506. Walp. Rep. 2. 85. Watson, King's Rep. 5. 109; Rev. Œnoth. 588. Porter, Fl. Col. 46. Brew. & Wats. Bot. Calif. 1. 224.

Œ. Nuttallii. Torrey, Frem. Rep. 89. Gray, Proc. Acad. Philad. 1863, 61.

Œ. brevipes. Gray, Pac. R. Rep. 4. 87; Ives's Rep. 12. Watson, Rev. Œnoth. 595. Parry, Am. Naturalist, 9. 271. Brew. & Wats. Bot. Calif. 1. 227.

Œ. clavæformis. Torrey, Mex. Bound. 66, in part.

Var. **parviflora.** Watson, Am. Naturalist, 9. 271; Brandegee, Fl. S. W. Col. 236. Parry, Am. Naturalist, 9. 19.

Œ. cæspitosa. Nutt. in Fraser's Cat. 1813; Genera, 1. 246. Sims, Bot. Mag. t. **1593.** Pursh, 735. Poir. Suppl. 5. 743. James, Cat. 180. Spreng. Syst. 2. 230. Seringe, DC. Prodr. 3. 46. Don, Mill. 2. 687. Torr. & Gray, Fl. 1. 500. Eat. & Wr. 332. Dietr. 2. 1287. Torrey, Nicol. Rep. 150; Stansb. Rep. 387. Hook. in Lond. Journ. Bot. 6. 223. Engelm. Pl. Upp. Miss. 191. Gray, Pac. R. Rep. 12. 43; Proc. Am. Acad. 8. 384. Durand, Fl. Utah, 164. Porter, Hayd. Rep. 1870, 476; Fl. Col. 45. Watson, Rev. Œnoth. 585. Rothr. Pl. Wheeler, 40. Brew. & Wats. Bot. Calif. 1. 224.

Œ. scapigera. Pursh, 263. Poir. Suppl. 5. 743. Link, Enum. 1. 377.

Pachylophis Nuttallii. Spach, Monogr. Onagr. 36, t. **30, f. 1**; Hist. Veg. 4. 365, t. **86, f. 1.**

Œ. montana. Nutt.; Torr. & Gray, Fl. 1. 500. Walp. Rep. 2. 83. Torrey, Frem. Rep. 315; Stansb. Rep. 387. Gray, Pl. Fendl. 45. Engelm. l. c. 191.

Œ. marginata. Nutt.; Hook. & Arn. Bot. Beechey, 342. Torr. & Gray, Fl. 1. 500; Pac. R. Rep. 2. 120. Walp. Rep. 2. 83. Torrey, Stansb. Rep. 387; Mex. Bound. 65. Gray, Proc. Acad. Philad. 1863, 61. Hook. f. Bot. Mag. t. **5828.** Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 108. Porter, Hayd. Rep. 1871, 483. Coulter, same, 1872, 767.

Œ. eximia. Gray, Pl. Fendl. 45; Ives's Rep. 11. Walp. Ann. 2. 533.

Œ. Californica. Watson, Bot. Calif. 1. 223.

Œ. albicaulis, var. *Californica.* Watson, Rev. Œnoth. 582.

Œ. canescens. Torrey, Frem. Rep. 315 (Bot. Zeit. 5. 44). Gray, Pl. Fendl. 44; Pl. Wright. 1. 70. Walp. Ann. 1. 292. Watson, l. c. 587. Porter, Fl. Col. 45.

Œ. guttulata. Hook. in Lond. Journ. Bot. 6. 222.

Œ. cardiophylla. Torrey, Pac. R. Rep. 5. 300; Mex. Bound. 66. Watson, Rev. Œnoth. 595. Brew. & Wats. Bot. Calif. 1. 227.

Œ. chamænerioides. Gray, Pl. Wright. 2. 58; Pl. Thurb. 298; Ives's Rep. 12. Walp. Ann. 4. 677. Torrey, Mex. Bound. 66. Watson, Rev. Œnoth. 593.

Œ. cheiranthifolia. Hornemann, Hort. Hafn. Suppl. Spreng. Syst. 2. 228. Lindl. Bot. Reg. 12, **t. 1040.** Seringe, DC. Prodr. 3. 46. Don, Mill. 2. 684, **f. 95.** Torr. & Gray, Fl. 1. 509. Dietr. 2. 1284. Benth. Bot. Sulph. 15. Torrey, Pac. R. Rep. 7. 11; Bot. Wilkes, 298. Watson, Rev. Œnoth. 592. Brew. & Wats. Bot. Calif. 1. 225.

Œ. spiralis. Hook. Fl. Bor.-Am. 1. 213. Don, Mill. 2. 685. Spach, Monogr. Onagr. 16. Hook. & Arn. Bot. Beechey, 141 & 341. Eat. & Wr. 332. Dietr. 2. 1285.

Holostigma cheiranthifolium. Spach, l. c. 15.

Agassizia cheiranthifolia. Spach, Hist. Veg. 4. 348.

Sphærostigma cheiranthifolium. Fisch. & Mey. Ind. Sem. Petrop. 2. 25 (Litt.-Ber. zu Linnæa, 1837, 120). Walp. Rep. 2. 77. Gay, Fl. Chil. 2. 330.

Sphærostigma spirale. Fisch. & Mey. l. c.

Œ. viridescens. Torrey, Pac. R. Rep. 4. 87.

Œ. contorta. Bolander, Cat. 12.

Var. **suffruticosa.** Watson, Rev. Œnoth. 592. Brew. & Wats. l. c.

Œ. viridescens. Hook. Fl. Bor.-Am. 1. 214.. Don, Mill. 2. 685. Spach, Monogr. Onagr. 16. Torr. & Gray, Fl. 1. 508. Eat. & Wr. 332. Bolander, Cat. 12.

Sphærostigma viridescens. Walp. Rep. 2. 77.

Œ. coronopifolia. Torr. & Gray, Fl. 1. 495. Walp. Rep. 2. 80. Gray, Pl. Fendl. 43; Pl. Wright. 2. 57; Pac. R. Rep. 12. 43; Am. Journ. Sci. 2. 34. 333. Proc. Acad. Philad. 1863, 61. Hook. in Lond. Journ. Sci. 6. 222. Torrey, Sitg. Rep. 159; Pac. R. Rep. 4. 86 & 7. 11; Mex. Bound. 65. Engelm. Pl. Upp. Mex. 191; Am. Journ. Sci. 2. 34. 333. Porter, Hayd. Rep. 1870, 476; Fl. Col. 44. Watson, King's Rep. 5. 106; Rev. Œnoth. 582. Rothr. Pl. Wheeler, 40.

Œ. pinnatifida. James, Long's Exped. 2. 154. Torrey, Ann. Lyc. N. Y. 2. 201.

Œ. dentata. Cavanilles, Icon. 4. 67, **t. 398.** Ruiz & Pav. Fl. Peruv. 3. 81, **t. 317.** Lindl. Coll. Bot. **t. 10.** Seringe, DC. Prodr. 3. 46. Presl, Rel. Hænk. 2. 31. Don, Mill. 2. 684. Torr. & Gray, Fl. 1. 511. Dietr. 2. 1284. Torrey, Pac. R. Rep. 4. 87. Gray, Ives's Rep. 12. Anderson, Cat. Pl. Nev. 120. Watson, Rev. Œnoth. 593. Brew. & Wats. Bot. Calif. 1. 226.

Holostigma argutum. Spach, Monogr. Onagr. 13.

Sphærostigma dentata. Walp. Rep. 2. 78. Gay, Fl. Chil. 2. 326.

Var. **cruciata.** Watson, l. c. 594. Brew. & Wats. l. c.

Œ. strigulosa. Benth. Pl. Hartw. 310.

Œ. Drummondii. Hook. Bot. Mag. **t. 3361** (Ann. Sci. Nat. 2. 5. 296). Spach, Monogr. Onagr. 28; Hist. Veg. 4. 356. Torr. & Gray, Fl. 1. 493. Dietr. 2. 1290. Walp. Rep. 2. 81. Torrey, Frem. Rep. 89. Engelm. & Gray, Pl. Lindh. 8. Gray, same, 189. Scheele, Roem. Texas, 430. Watson, Rev. Œnoth. 580. Young, Fl. Texas, 206.

? *Œ. sinuata*, var. *humifusa.* Gray, Proc. Am. Acad. 5. 158.

Œ. Fremonti. Watson, Rev. Œnoth. 587.

Œ. Wrightii. Torrey, Mex. Bound. 65, in part.

Œ. fruticosa. Linn. Spec. 346. Hill, Veg. Syst. 11, **t. 10, f. 3.** L'Her. Stirp. Nov. 2, **t. 5.** Walter, 129. Ait. Hort. Kew. 2. 4. Lam. Dict. 4. 550. Moench, Meth. 677. Willd. Spec. 2. 310. Persoon, 1. 409. Pursh, 262. Nutt. Genera, 1. 247. Elliott, 1. 442. Torrey, Fl. U. S. 389; Fl. N. Y. 1. 234. Spreng. Syst. 2. 229. Lehm. in Hook. Fl. Bor.-Am. 1. 212. Don, Mill. 2. 689. Beck, Bot. 118.

ck. Bot. Mag. under t. 3545, excl. var. γ. Torr. & Gray, Fl. 1. 496. Chap-, 139. Gray, Struct. Bot. 419, f. **822–825**; Manual, 179. Watson, Rev. nth. 583.

E. mollissima. Walter, 129.

E. Florida. Salisb. Prodr. 278.

E. tetragona. Roth, Cat. Bot. 2. 39; Beiträg. Bot. 1. 200; Ann. Bot. 2. 30. nem. Hort. Hafn. Suppl. 1. 44. Seringe, DC. Prodr. 3. 52. Don, Mill. 2. 690. & Wr. 332.

E. hybrida. Michx. Fl. 1. 225. Persoon, 1. 408. Pursh, 262. Poir. Suppl. 3. Elliott, 1. 442. Spreng. Syst. 2. 229. Seringe, DC. Prodr 3. 50. Don, Mill. 89. Beck, Bot. 119. Eat. & Wr. 331. Dietr 2. 1288.

Kneiffia suffruticosa & floribunda. Spach, Monogr Onagr. 45 & 46; Hist. Veg. 4 & 376.

E. fruticosa, var. *Indica.* Lindl. Bot. Reg. 27, t. **11.**

r. **linearis.** Watson, Rev. Œnoth. 584.

E. linearis. Michx. Fl. 1. 225. Persoon, 1. 409. Pursh, 262. Poir. Suppl. 4. Elliott, 1. 444. Nutt. Genera, 1. 248. Spreng. Syst. 2. 230. Seringe, DC. lr. 3. 51. Don, Mill. 2. 689. Torr. & Gray, Fl. 1 497. Eat. & Wr. 332. Tor-Fl. N. Y. 1. 235. Chapman, 139. Gray, Manual, 179, in part.

Œ. fruticosa, var. (?) *linearifolia.* Hook. Bot. Mag. under t. 3545.

Œ. media. Link, Enum. 1. 377. Seringe, DC. Prodr. 3. 49. Don, Mill. 86. Eat. & Wr. 332. Dietr. 2. 1286.

Œ. riparia. Nutt. Genera, 1. 247. Spreng. Syst. 2. 229. Seringe, DC. Prodr. 2. Don, Mill. 2. 690. Torr. & Gray, Fl. 1. 497. Eat. & Wr. 331. Chapman, . Gray, Manual, 179.

Kneiffia angustifolia, & maculata? Spach, Monogr. Onagr. 46 & 47.

Onagra Linkiana. Spach, l. c. 34.

Kneiffia linearis. Spach, Hist. Veg. 4. 376.

ar. **ambigua.** Nutt. Genera, 1. 247. Torrey, Fl. U. S. 389. Hook. Bot. Mag. 3545. Torr. & Gray, Fl. 1. 496. Watson, Rev. Œnoth. 584.

Œ. ambigua. Spreng. Syst. 2. 229. Seringe, DC. Prodr. 3. 50. Don, Mill. 89. Beck, Bot. 118. Dietr. 2. 1289.

Œ. Canadensis. Goldie, Edinb. Phil. Journ. 6. 325. Seringe, DC. Prodr. 3. 52. . & Wr. 331.

ar. **phyllopus.** Hook. Fl. Bor.-Am. 1. 212; Bot. Mag. under t. 3545. Torr. & y, Fl. 1. 496.

E. fruticosa. Sims, Bot. Mag. t. **332.**

E. serotina. D. Don in Sweet's Brit. Fl. Gard. 2 ser. t. **184.** Sweet, Hort. t. **152.** Lindl. Bot. Reg. 22, t. **1840.** Don, Mill. 2. 689.

r. **incana.** Hook. ll. cc. Torr. & Gray, Fl. 1. 496.

E. incana. Nutt. Genera, 1. 247. Torrey, Fl. U. S. 389. Spreng. Syst. 2. 229. ge, DC. Prodr. 3. 52. Don, Mill. 2. 690. Beck, Bot. 119. Eat. & Wr. 331.

r. **hirsuta.** Nutt.; Torr. & Gray, Fl. 1. 496.

E. pilosella. Raf. Ann. Nat. 15.

r. **humifusa.** Allen, Torr. Bot. Bull. 1. 2. Watson, Rev. Œnoth. 584.

E. linearis, var. Torr. & Gray, Fl. 1. 497.

Œ. linearis. Gray, Manual, 179, in part.

gaureflora. Torr. & Gray, Fl. 1. 510. Torrey, Mex. Bound. 66. Gray, s's Rep. 12. Watson, Rev. Œnoth. 591. Brew. & Wats. Bot. Calif. 1. 227.

Gaura decorticans. Hook. & Arn. Bot. Beechey, 343.

Sphærostigma gauræflorum. Walp. Rep. 2. 78.

Œ. Nevadensis. Kellogg, Proc. Calif. Acad. 2. 224, f. **70.**

Œ. glauca. Michx. Fl. 1. 224. Persoon, 1. 408. Pursh in Sims, Bot. Mag t. **1606**; Fl. 262. Poir. Suppl. 4. 143. Nutt. Genera, 1. 247. Spreng. Syst. 2. 229 Seringe, DC. Prodr. 3. 50. Don, Mill. 2. 689. Lindl. Bot. Reg. 18, t. **1511.** Tor & Gray, Fl. 1. 497. Eat. & Wr. 332. Chapman, 138. Gray, Manual, 179. Wa son, Rev. Œnoth. 584.

Kneiffia glauca. Spach, Monogr. Onagr. 45; Hist. Veg. 4. 374.

Var. **Fraseri.** Torr. & Gray, Fl. 1. 497.

Œ. Fraseri. Pursh in Sims, Bot. Mag. t. **1674**; Fl. 734. Poir. Suppl. 5. 7 Elliott, 1. 443. Spreng. Syst. 2. 229. Seringe, DC. Prodr. 3. 51. Maund, B Gard. 4, t. **163.** Don, Mill. 2. 689. Eat. & Wr. 332. Dietr. 2. 1289.

Kneiffia Fraseri. Spach, Monogr. Onagr. 46; Hist. Veg. 4. 375.

Œ. fruticosa, var. *Fraseri.* Hook. Bot. Mag. under t. 3545.

Œ. graciliflora. Hook. & Arn. Bot. Beechey, 341. Torr. & Gray, Fl. 1. Hook. Icon. t. **338.** Walp. Rep. 2. 86. Benth. Pl. Hartw. 310. Bolander, 12. Watson, Rev. Œnoth. 589. Brew. & Wats. Bot. Calif. 1. 225.

Œ. Greggii. Gray, Pl. Fendl. 46; Pl. Wright. 1. 72. Walp. Ann. 2. 533. son, Rev. Œnoth. 590; Pl. Wheeler, 9.

Œ. Lampasana. Buckley, Proc. Acad. Philad. 1861, 454; referred to *Œ. ucgi*, var., by Gray, same, 1862, 163.

Œ. Guadalupensis. Watson, Proc. Am. Acad. 11. 116 & 137. Brew. & Wats Bot. Calif. 1. 226. (Guadalupe Island.)

Œ. Hartwegi. Benth. Pl. Hartw. 5. Gray, Pl. Fendl. 46; Pl. Wright. 1. 72 & 2. 58. Torrey, Sitgr. Rep. 159; Mex. Bound. 66. Watson, Rev. Œnoth. 590.

Var. **lavandulæfolia.** Watson, l. c. Porter, Fl. Col. 44.

Œ. lavandulæfolia. Torr. & Gray, Fl. 1. 501; Pac. R. Rep. 2. 164. Walp. Rep. 2. 85. Gray, Pl. Fendl. 46; Pl. Wright. 1. 72 & 2. 58; Am. Journ. Sci. 2. 33 - 405. Hook. in Lond. Journ. Bot. 6. 223. Torrey, Marcy's Rep. 285; Mex. Bound. 66. Engelm. Pl. Upp. Miss. 192.

Var. **Fendleri.** Gray, Pl. Wright. 1. 72 & 2. 58; Pl. Thurb. 300. Torr. & Gray, Pac. R. Rep. 2. 164. Watson, l. c.

Œ. Fendleri. Gray, Pl. Fendl. 45. Walp. Ann. 2. 533.

Œ. heterantha. Nutt. in Journ. Acad. Philad. 7. 22. Torr. & Gray, Fl. 1 - 507. Eat. & Wr. 331. Walp. Rep. 2. 86. Gray, Pl. Fendl. 45; Pl. Wright. 1. 70. Watson, King's Rep. 5. 110; Rev. Œnoth. 589; Pl. Wheeler, 9. Porter, Hayd. Rep. 1871, 483. Coulter, same, 1872, 767. Torrey, Bot. Wilkes, 208. Brew. & Wats. Bot. Calif. 1. 224.

Jussiæa subacaulis. Pursh, 304. Poir. Suppl. 5. 713. Spreng. Syst. 2 - 230. Don, Mill. 2. 692. Eat. & Wr. 289.

Œ. triloba. Hook. in Lond. Journ. Bot. 6. 223.

Var. (?) **taraxacifolia.** Watson, Rev. Œnoth. 589. Brew. & Wats. l. c. 225.

Œ. heterophylla. Spach, Monogr. Onagr. 28. Walp. Rep. 2. 81. Watson, Rev. Œnoth. 580.

Œ. bifrons. D. Don in Sweet, Brit. Fl. Gard. 2 ser. t. **386.** Hook. Bot. Mag. t. **3764.** Torr. & Gray, Fl. 1. 492. Dietr. 2. 1290. Walp. Rep. 2. 81. Gray, Pl. Wright. 1. 69; Hall's Pl. Texas, 9. Young, Fl. Texas, 266.

Œ. rhombipetala. Engelm. & Gray, Pl. Lindh. 8. Dur. & Hilg. in Pac. R. Rep. 5. 7.

Œ. Leona. Buckley, Proc. Acad. Philad. 1861, 163; fide Gray, same, 1862, 163.

Œ. humifusa. Nutt. Genera, 1. 245. Spreng. Syst. 2. 228. Seringe, DC. Prodr. 3. 47. Don, Mill. 2. 687. Spach, Monogr. Onagr. 30. Eat. & Wr. 332. Watson, Rev. Œnoth. 580.

Œ. sinuata, var. *humifusa*. Torr. & Gray, Fl. 1. 494. Chapman, 138. A. H. Smith, Proc. Acad. Philad. 1867, 19.

Œ. Jamesii. Torr. & Gray, Fl. 1. 493. Walp. Rep. 2. 81. Gray, Pl. Lindh. 189; Pl. Wright. 1. 69. Torrey, Sitgr. Rep. 175; Pac. R. Rep. 4. 86; Mex. Bound. 65. Watson, Rev. Œnoth. 579.

Œ. Johnsoni. Watson, Am. Naturalist, 9. 270. Parry, same, 9. 18.

Œ. linifolia. Nutt. in Journ. Acad. Philad. 2. 120 (Litt.-Ber. zu Linnæa, 1829, 40). Seringe, DC. Prodr. 3. 50. Don, Mill. 2. 690. Torr. & Gray, Fl. 1. 499. Eat. & Wr. 332. Dietr. 2. 1288. Engelm. & Gray, Pl. Lindh. 8. Chapman, 139. Gray, Hall's Pl. Texas, 9. Young, Fl. Texas, 268. Watson, Rev. Œnoth. 583.

Kneiffia linifolia. Spach, Monogr. Onagr. 48.

Œ. macrosceles. Gray, Pl. Fendl. 43. Walp. Ann. 2. 533. Watson, l. c. 588. (Northern Mexico.)

Œ. micrantha. Hornem. Hort. Hafn. Suppl. Spreng. Syst. 2. 228. Hook. & Arn. Bot. Beechey, 341. Torr. & Gray, Fl. 1. 509. Watson, Rev. Œnoth. 593. Brew. & Wats. Bot. Calif. 1. 226.

Œ. dentata. Seringe, DC. Prodr. 3. 46, in part.

Œ. hirta. Link, Enum. 1. 378. Don, Mill. 2. 684.

Sphærostigma micranthum. Walp. Rep. 2. 77.

Œ. cheiranthifolia, & *strigulosa* in part. Torrey, Pac. R. Rep. 4. 87.

Œ. bistorta. Gray, Proc. Bost. Soc. Nat. Hist. 7. 146.

Œ. Missouriensis. Sims, Bot. Mag. t. **1592**, & under t. 1674. Don, Mill. 2. 689. Torr. & Gray, Fl. 1. 500; Pac. R. Rep. 2. 164. Torrey, Frem. Rep. 89 & 315; Pac. R. Rep. 4. 86; Mex. Bound. 65, in part. Gray, Pl. Lindh. 188; Pl. Wright. 1. 70; Proc. Acad. Philad. 1863, 61; Hall's Pl. Texas, 9. Engelm. in Wisliz. Rep. 3. Burnett, Encyc. Pl. 2, t. **198**. Wood, Cl.-Book, 353; Bot. & Fl. 126. Watson, Rev. Œnoth. 587. Porter, Fl. Col. 45.

Megapterium Missouriense. Spach, Monogr. Onagr. 31; Hist. Veg. 4. 364.

Œ. Drummondii. Hook. in Lond. Journ. Bot. 6. 221.

Var. **latifolium.** Gray, Pl. Lindh. 188.

Œ. macrocarpa. Pursh, 734. Poir. Suppl. 5. 743. Bradbury, Cat. 336. James, Long's Exped. 2. 324. Maund, Bot. Gard. 1, t. **41**. Torrey, Ann. Lyc. N. Y. 2. 201. Sweet, Brit. Fl. Gard. t. **5**. Spreng. Syst. 2. 229. Seringe, DC. Prodr. 3. 47. Don, Mill. 2. 689. Eat. & Wr. 332. Dietr. 2. 1286. Scheele, Roem. Texas, 430. Rev. Hort. 6. 597, f. **182**.

Œ. alata. Nutt. Genera, 1. 248. James, Cat. 180.

Megapterium Nuttallii. Spach, Monogr. Onagr. 31; Hist. Veg. 4. 364.

Var. **incana.** Gray, Pl. Lindh. 189. Torrey, Pac. R. Rep. 4. 86.

Œ. multijuga. Watson, Am. Naturalist, 7. 300; Rev. Œnoth. 595.

Œ. Nuttallii. Torr. & Gray, Fl. 1. 506. Walp. Rep. 2. 86. Watson, King's Rep. 5. 110; Rev. Œnoth. 589. Brew. & Wats. Bot. Calif. 1. 224.

Œ. tanacetifolia. Torr. & Gray, Pac. R. Rep. 2. 121, t. **4** (Regensb. Flora, 41. 622). Newberry, Pac. R. Rep. 6. 74. Anderson, Cat. Pl. Nev. 120. Watson, King's Rep. 5. 110; Pl. Wheeler, 9.

Œ. Oakesiana. Robbins, in herb.

Œ. biennis, var. *Oakesiana*. Gray, Manual, 178. Watson, Rev. Œnoth. 579.

Œ. ovata. Nutt.; Torr. & Gray, Fl. 1. 507. Walp. Rep. 2. 86. Benth. Pl. Har 310. Torrey, Pac. R. Rep. 4. 87. Boland. Cat. 12. Watson, Rev. Œnoth. 5 Brew. & Wats. Bot. Calif. 1. 225.

Œ. Palmeri. Watson, Proc. Am. Acad. 12. 251.

Œ. Parryi. Watson, Am. Naturalist, 9. 270. Parry, same, 9. 20.

Œ. pinnatifida. Nutt. Genera, 1. 245. James, Cat. 179. Spreng. Syst. 2. Torr. & Gray, Fl. 1. 494. Eat. & Wr. 332. Dietr. 2. 1289. Walp. Rep. 2 Torrey, Nicol. Rep. 150. Nees, Pl. Neuwied, 9. Gray, Pl. Fendl. 43; Am. Jo Sci. 2. 34. 333; Proc. Acad. Philad. 1863, 61. Hook. in Lond. Journ. Bot. 6. Engelm. Pl. Upp. Miss. 191; Am. Journ. Sci. 2. 34. 333. Porter, Hayd. Rep. 1 476; Fl. Col. 44. Watson, Rev. Œnoth. 581. Rothr. Pl. Wheeler, 40.

Œ. albicaulis. Pursh, 733; not Nutt. Poir. Suppl. 5. 743. Seringe, DC. Pr 3. 51. Torrey, Mex. Bound. 65. Gray, Ives's Rep. 11; Am. Journ. Sci. 2. 33. in part.

Baumannia pinnatifida. Spach, Hist. Veg. 4. 353.

Œ. Purshii. Don, Mill. 2. 688.

Œ. coronopifolia. Gray, Pl. Wright. 2. 56.

Œ. primiveris. Gray, Pl. Wright. 2. 58; Pl. Thurb. 298; Ives's Rep. 11. W Ann. 4. 677. Torrey, Mex. Bound. 65. Watson, Rev. Œnoth. 586.

Œ. pterosperma. Watson, King's Rep. 5. 112, t. **14**; Rev. Œnoth. 595. B & Wats. Bot. Calif. 1. 228.

Œ. pumila. Linn. Spec. 2 ed. 493. Hill, Veg. Syst. 11, t. **10**, f. **4**. Ait. H Kew. 2. 4. Lam. Dict. 4. 553. Curtis, Bot. Mag. t. **355**. Willd. Spec. 2. Persoon, 1. 409. Pursh, 262. Bigel. Fl. Bost. 91. Elliott, 1. 444. Torrey U. S. 390; Fl. N. Y. 1. 230. Maund, Bot. Gard. 1, t. **35**. Spreng. Syst. 2. Lehm. in Hook. Fl. Bor.-Am. 1. 212. Don, Mill. 2. 689. Beck, Bot. 119. T & Gray, Fl. 1. 498. Eat. & Wr. 331. Chapman, 130. Pl. Bourgeau, 256. G Manual, 179. Watson, Rev. Œnoth. 583.

Œ. pusilla. Michx. Fl. 1. 225. Persoon, 1. 409. Pursh, 263. Poir. Su 4. 144. Nutt. Genera, 1. 248. Torrey, Fl. U. S. 390. Spreng. Syst. 2. 230. ringe, DC. Prodr. 3. 51. Don, Mill. 2. 690. Beck, Bot. 119. Eat. & Wr. 331.

Œ. chrysantha. Michx. Fl. 1. 225. Persoon, 1. 409. Pursh, 263. Poir. Su 4. 144. Elliott, 1. 444. Torrey, Fl. U. S. 390; Fl. N. Y. 1. 235. Spreng. S 2. 229. Don, Mill. 2. 690. Beck, Bot. 119. Torr. & Gray, Fl. 1. 498. Eat. & 331. Matthew, Fl. Acad. 20. Gray, Manual, 179.

Œ. gracilis. Schrader, Ind. Sem. Gœtt.

Œ. riparia. Lehm. in Hook. Fl. Bor.-Am. 1. 212.

Kneiffia pumila & chrysantha. Spach, Monogr. Onagr. 47 & 48, excl. vars.

Œ. rhombipetala. Nutt.; Torr. & Gray, Fl. 1. 493. Walp. Rep. 2. 81. rey, Frem. Rep. 89; Marcy's Rep. 285; Sitgr. Rep. 175. Kunze, Linnæa, 20 Parry, Pl. Minn. 612. Engelm. Pl. Upp. Miss. 192. Gray, Manual, 178. Wa Rev. Œnoth. 580.

Œ. rosea. Ait. Hort. Kew. 2. 3. Meerburgh, Pl. Sel. t. **17**. Curtis, Bot. M t. **347**. Seringe, DC. Prodr. 3. 51. Don, Mill. 2. 689. Gray, Pl. Wright. 2 Torrey, Mex. Bound. 65. Watson, Rev. Œnoth. 585.

Œ. rubra. Cav. Icon. 4. 68, t. **400**.

Œ. purpurea. Lam. Dict. 4. 554.

Hartmannia gauroides. Spach, Monogr. Onagr. 41; Hist. Veg. 4. 371.

Œ. scapoidea. Nutt.; Torr. & Gray, Fl. 1. 506. Walp. Rep. 2. 86. Hoo Lond. Journ. Bot. 6. 224. Torrey, Stansb. Rep. 387, in part. Durand, Fl. U

164. Watson, King's Rep. 5. 109; Rev. Œnoth. 594. Coulter, Hayd. Rep. 1872, *767.* Brandegee, Fl. S. W. Col. 236. Brew. & Wats. Bot. Calif. 1. 227.

Var. **purpurascens.** Watson, Rev. Œnoth. 595; Pl. Wheeler, 9. Brew. & Wats. l. c.

Œ. clavæformis. Torr. & Gray, Pac. R. Rep. 2. 121.

Œ. cruciformis. Kellogg, Proc. Calif. Acad. 2. 227, **f. 71.**

Œ. scapoidea, var. *clavæformis.* Watson, King's Rep. 5. 109.

Var. **aurantiaca.** Watson, Rev. Œnoth. 595. Brew. & Wats. l. c.

Œ. clavæformis. Torrey, Frem. Rep. 314 (Bot. Zeit. 5. 42); Pac. R. Rep. 4. 86 & 5. 360; Mex. Bound. 66, in part. Walp. Ann. 1. 291. Gray, Ives's Rep. 12. Anderson, Cat. Pl. Nev. 120.

Œ. serrulata. Nutt. Genera, 1. 246. James, Cat. 180. Torrey, Ann. Lyc. N. Y. 2. 201; Nicol. Rep. 150; Frem. Rep. 89; Marcy's Rep. 285; Pac. R. Rep. 4. 86; Mex. Bound. 65. Sweet, Brit. Fl. Gard. **t. 133.** Spreng. Syst. 2. 228. Seringe, DC. Prodr. 3. 49. Maund, Bot. Gard. 7, **t. 330.** Don, Mill. 2. 687. Torr. & Gray, Fl. 1. **501**; Pac. R. Rep. 2. 164. Eat. & Wr. 332. Dietr. 2. 1286. Engelm. in Wisliz. Rep. 3; Pl. Upp. Miss. 191. Parry, Pl. Minn. 612. Gray, Pac. R. Rep. 12. 43; Proc. Acad. Philad. 1863, 61; Manual, 179. Pl. Bourgeau, 256. Porter, Hayd. Rep. 1870, 476; Fl. Col. 46. Watson, Rev. Œnoth. 590.

Calylophis Nuttallii. Spach, Monogr. Onagr. 17; Hist. Veg. 4. 350.

Œ. fruticosa. Gray, Pl. Fendl. 44.

Meriolix serrulata. Walp. Rep. 2. 79; Ann. 2. 532.

Var. **pinifolia.** Engelm.; Gray, Pl. Lindh. 189; Hall's Pl. Texas, 9. Watson, Rev. Œnoth. 591.

Œ. capillifolia. Scheele, Linnæa, 21. 576.

Var. **spinulosa.** Torr. & Gray, Fl. 1. 502. Engelm. & Gray, Pl. Lindh. 36. Gray, same, 189; Pl. Wright. 1. 71; Hall's Pl. Texas, 9. Scheele, Roem. Texas, 430. Watson, l. c.

Œ. serrulata. Nutt. in Journ. Acad. Philad. 2. 120 (Litt.-Ber. zu Linnæa, 1829, 40). Hook. Exot. Fl. **t. 140.**

Var. **Douglasii.** Torr. & Gray, Fl. 1. 502; Pac. R. Rep. 2. 126. Gray, Pl. Fendl. 45. Hook. in Lond. Journ. Bot. 6. 224.

Œ. leucocarpa. Lehm. in Hook. Fl. Bor.-Am. 1. 210; Nov. Stirp. Pug. 2. 17. Don, Mill. 2. 687. Eat. & Wr. 330. Dietr. 2. 1287.

Var. **Drummondii.** Torr. & Gray, Fl. 1. 502.

Calylophis Drummondiana, & Berlandieri? Spach, Monogr. Onagr. 18.

Meriolix Berlandieri. Walp. Rep. 2. 79.

Œ. spinulosa, var. *Drummondii.* Engelm. Pl. Upp. Miss. 192.

Œ. sinuata. Linn. Mant. 228. Murray, Nov. Com. Gœtt. 5. 44, **t. 9.** Ait. Hort. Kew. 2. 3. Lam. Dict. 4. 553. Willd. Spec. 2. 309. Michx. Fl. 1. 224. Persoon, 1. 408. Pursh, 261. Elliott, 1. 443. Torrey, Fl. U. S. 388; Marcy's Rep. 285; Mex. Bound. 65. Spreng. Syst. 2. 227. Beck, Am. Journ. Sci. 10. 180. Don, Mill. 2. 686. Spach, Monogr. Onagr. 29. Hook. Comp. Bot. Mag. 1. 25. Torr. & Gray, Fl. 1. 494; Pac. R. Rep. 2. 164. Eat. & Wr. 331. Benth. Pl. Hartw. 6. Scheele, Roem. Texas, 431. Lesq. Fl. Ark. 360. Chapman, 138. Gray, Manual, 178; Hall's Pl. Texas, 9, in part. Watson, Rev. Œnoth. 581.

Œ. laciniata. Hill, Syst. Veg. 12, Suppl. **t. 10**; Hort. Kew. 172[4], **t. 6.**

Œ. biennis. Walter, 129.

Œ. repanda. Medicus, Act. Palat. 3. 198, **t. 8.**

Onagra sinuata. Moench, Meth. 676.

Œ. prostrata. Ruiz & Pav. Fl. Peruv. 3. 79, t. **315**. Seringe, DC. Prodr. 3. 48.
? *Œ. viscosa.* Raf. Fl. Lud. 96. Don, Mill. 2. 687. Eat. & Wr. 332.

Var. **minima.** Nutt. Genera, 1. 245. Beck, Bot. 118. Hook. Bot. Mag. t. **3392**; Lond. Journ. Bot. 6. 221. Watson, l. c.

Œ. minima. Pursh, Flora, 262, t. **15**. Poir. Suppl. 5. 743. Spreng. Syst. 2. 228. Seringe, DC. Prodr. 3. 49. Don, Mill. 2. 687. Spach, Monogr. Onagr. 29.

Var. **hirsuta.** Torr. & Gray, Fl. 1. 494. Gray, Pl. Fendl. 43; Hall's Pl. Texas, 9. Watson, l. c.

Œ. Mexicana. Spach, Monagr. Onagr. 27. Walp. Rep. 2. 81.

Var. **grandiflora.** Watson, l. c.

? *Œ. longiflora.* Scheele, Roem. Texas, 430.

Œ. sinuata. Gray, Hall's Pl. Texas, 9, in part.

Œ. Spachiana. Torr. & Gray, Fl. 1. 498; Pac. R. Rep. 2. 164. Walp. Rep. 2. 84. Gray, Pl. Wright. 1. 70; Hall's Pl. Texas, 9. Watson, Rev. Œnoth. 583. Young, Fl. Texas, 267.

Blennoderma Drummondii. Spach, Monogr. Onagr. 86.

Œ. Drummondii. Walp. Rep. 2. 85.

? *Œ. uncinata.* Scheele, Linnæa, 21. 578. Gray, Pl. Lindh. 190. Walp. Ann. 2. 533.

Œ. speciosa. Nutt. in Journ. Acad. Philad. 2. 119 (Litt.-Ber. zu Linnæa, 1829, 40). Hook. Exot. Fl. 2, t. **80**; Bot. Mag. t. **3189**. Spreng. Syst. 2. 230. Seringe, DC. Prodr. 3. 50. D. Don in Sweet, Brit. Fl. Gard. t. **253**. Maund, Bot. Gard. 8, t. **339**. Don, Mill. 2. 688. Torr. & Gray, Fl. 1. 496; Pac. R. Rep. 2. 126 & 164. Eat. & Wr. 332. Dietr. 2. 1289. Walp. Rep. 2. 85. Torrey, Frem. Rep. 89; Marcy's Rep. 285; Pac. R. Rep. 4. 86. Gray, Pl. Fendl. 44; Pl. Lindh. 189; Pl. Wright. 1. 70; Hall's Pl. Texas, 9. Engelm. & Gray, Pl. Lindh. 8 & 31. Engelm. in Wisliz. Rep. 3. Scheele, Roem. Texas, 431. Wood, Bot. & Fl. 126. Watson, Rev. Œnoth. 585. Young, Fl. Texas, 267.

Xylopleurum hirsutum, Drummondii & obtusifolium. Spach, Monogr. Onagr. 50-52.

Xylopleurum Nuttallii. Spach, l. c. 51; Hist. Veg. 4. 378.

Œ. Spachii & obtusifolia. Dietr. 2. 1289.

Œ. Drummondii. Schnitzlein, Iconogr. t. **265**, f. **1**.

Œ. strigulosa. Torr. & Gray, Fl. 1. 512. Dietr. 2. 1284. Torrey, Pac. R. Rep. 4. 87, in part, & 7. 11 ?; Bot. Wilkes, 298. Anderson, Cat. Pl. Nev. 120. Watson, Rev. Œnoth. 594. Brew. & Wats. Bot. Calif. 1. 226.

Sphærostigma strigulosum. Fisch. & Mey. in Ind. Sem. Petrop. 2. 25 (Ann. Sc. Nat. 2. 5. 187; Litt.-Ber. zu Linnæa, 1837, 120; Hook. Comp. Bot. Mag. 2. Walp. Rep. 2. 79.

Œ. contorta. Dougl.; Lehm. in Hook. Fl. Bor.-Am. 1. 214. Don, Mill. 2. 6 Spach, Monogr. Onagr. 16. Torr. & Gray, Fl. 1. 511. Eat. & Wr. 332. Di 2. 1285. Hook. in Lond. Journ. Bot. 6. 224 ? Torrey, Bot. Wilkes, 298.

Œ. parvula. Nutt.; Torr. & Gray, Fl. 1. 511.

Sphærostigma contortum & parvulum. Walp. Rep. 2. 78.

Var. **pubens.** Watson, l. c. Brew. & Wats. Bot. Calif. 1. 226.

Œ. dentata. Watson, King's Rep. 5. 111.

Œ. trichocalyx. Nutt.; Torr. & Gray, Fl. 1. 494. Walp. Rep. 2. 80. Torr Frem. Rep. 89. Hook. in Lond. Journ. Bot. 6. 222. Gray, Pl. Wright. 2. Newberry, Pac. R. Rep. 6. 74. Anderson, Cat. Pl. Nev. 120. Watson, Rev. Œnot 581. Brew. & Wats. Bot. Calif. 1. 224.

eltoidea. Torrey, Frem. Rep. 315 (Bot. Zeit. 5. 42). Walp. Ann. 1. 201. King's Rep. 5. 107.

bicaulis, var. *trichocalyx.* Engelm. in Am. Journ. Sci. 2. 33. 335. Watson, oth. 582.

oba. Nutt. in Journ. Acad. Philad. 2. 118 (Litt.-Ber. zu Linnæa, 1829, 40). Fl. N. Am. 2. 37, t. **49.** Sims, Bot. Mag. t. **2566.** Seringe, DC. Prodr. Reichenb. Hort. Bot. 2. 18, t. **145.** Don, Mill. 2. 689. Torr. & Gray, Fl. Pac. R. Rep. 2. 164. Eat. & Wr. 332. Dietr. 2. 1288. Gray, Pl. Lindh. Wright. 1. 70 & 2. 58; Proc. Acad. Philad. 1863, 61. Torrey, Mex. Bound. Bourgeau, 256. Watson, King's Rep. 5. 107; Rev. Œnoth. 586. Coulter, ep. 1872, 767. Porter, Fl. Col. 44. Rothr. Pl. Wheeler, 40. Brew. & ot. Calif. 1. 224.

izocarpa. Spreng. Syst. 2. 230. Seringe, DC. Prodr. 3. 50. Dietr. 2. 1288.

axia Nuttalliana. Spach, l. c. 38, t. **31, f. 1**; Hist. Veg. 4. 367, t. **85, f. 1.**

axia triloba. Spach, Hist. Veg. 4. 367.

Kæmeriana. Scheele, Linnæa, 22. 154. Walp. Ann. 2. 533.

icula. Gray, Pl. Wright. 1. 71 & 2. 58. Torr. & Gray, Pac. R. Rep. 2. 164. Mex. Bound. 66. Walp. Ann. 4. 676. Watson, Rev. Œnoth. 590.

ightii. Gray, Pl. Wright. 2. 57; Pl. Thurb. 300. Torr. & Gray, l. c. Mex. Bound. 65, in part. Walp. Ann. 4. 676. Watson, Rev. Œnoth. 586.

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i; Missouriensis, Jussiæa decur-
is.
ens; Godetia albescens.
ulis; Californica, pinnatifida,
chocalyx.
ua; fruticosa.
a & arcuata; Godetia amœna.
tii; Godetia lepida.
is; Oakesiana, sinuata.
s; heterophylla, G. amœna.
; Godetia biloba.
a; micrantha.
& *Californica*; Godetia Bottæ.
lensis; fruticosa.
folia; serrulata.
nthifolia; bistorta, micrantha.
ntha; pumila.
formis; brevipes, scapoidea.
ta; cheiranthifolia, strigulosa.
pifolia; pinnatifida.
ta; biennis.
ormis; scapoidea.
bens; Godetia lepida.
lea; trichocalyx.
flora; Godetia lepida, Boisdu-
llia densiflora & Torreyi.
ta; micrantha, strigulosa.
mondii; Missouriensis, Spachi-
a, speciosa.

Œ. epilobioides; Godetia epilobioides.
eximia; cæspitosa.
Fendleri; Hartwegi.
Florida; fruticosa.
Fraseri; glauca.
fruticosa; glauca, serrulata.
gauroides; biennis.
glabella; Boisduvallia glabella.
graciliflora; bistorta.
gracilis; pumila.
grandiflora; biennis, Godetia grandiflora.
guttulata; canescens.
Hartwegi; Greggii.
hirta; micrantha.
hispidula; Godetia hispidula.
Hookeri; biennis.
humilis; Godetia purpurea.
hybrida & incana; fruticosa.
laciniata; sinuata.
Lamarckiana; biennis.
Lampasana; Greggii.
lavandulæfolia; Hartwegi.
Leona; heterophylla.
lepida; Godetia lepida.
leucocarpa; serrulata.
Lindleyi; Godetia amœna.
linearis; fruticosa.
longiflora; sinuata.

Œ. macrocarpa; Missouriensis.
marginata; brachycarpa, cæspitosa.
media; fruticosa.
Mexicana & minima; sinuata.
mollissima; fruticosa.
montana; cæspitosa.
muricata; biennis.
Nevadensis; gauræflora.
Nuttallii; albicaulis, breviflora.
obtusifolia; speciosa.
odoruta; biennis.
pallida; albicaulis.
paludosa; Jussiæa decurrens.
parviflora; biennis.
parvula; strigulosa.
pilosella; fruticosa.
pinnatifida; albicaulis, coronopifolia.
prostrata; sinuata.
pubescens; biennis.
purpurea; rosea, Godetia albescens, lepida, purpurea, quadrivulnera & tenella.
Purshiana; pinnatifida.
pusilla; pumila.
pygmæa; Boothii.
quadrivulnera; G. quadrivulnera.
repanda; sinuata.
rhizocarpa; triloba.
rhombipetala; heterophylla.
riparia; fruticosa, pumila.
Œ. Rœmeriana; triloba.
Romanzovii; Godetia Roma
roseo-alba; Godetia amœna.
rubicunda; Godetia amœn epilobioides & hispidula.
rubra; rosea.
scapigera; cæspitosa.
serotina; fruticosa.
sinuata; Drummondii, hum
Spachii; speciosa.
spinulosa; serrulata.
spiralis; cheiranthifolia.
strigulosa; dentata, micran
suaveolens; biennis.
tanacetifolia; Nuttallii.
tenella; Godetia biloba, E lobioides, quadrivulnera, viminea.
tetragona; fruticosa.
Torreyi; Boisduvallia Torr
triloba; heterantha.
uncinata; Spachiana.
viminea; Godetia epilobioid quadrivulnera, tenella &
vinosa; G. amœna & epilob
viridescens; cheiranthifolia
viscosa; sinuata.
Whitneyi; Godetia grandifl
Williamsonii; Godetia Will
Wrightii; Fremontii.

STENOSIPHON virgatum. Spach, Monogr. Onagr. 64. Torr. & 1. 520; Pac. R. Rep. 2. 126. Torrey, Frem. Rep. 315; Pac. R. Rep. 4. Bound. 66. Engelm. & Gray, Pl. Lindh. 37. Walp. Rep. 2. 670. Gray, 47; Am. Journ. Sci. 2. 33. 405. Porter, Fl. Col. 44.

Gaura linifolia. Nutt. in Long's Exped. 2. 355. Torrey, Ann. Lyc. N. DC. Prodr. 3. 45. Hook. Comp. Bot. Mag. 1. 25. Don, Mill. 2. 683. E 251. Dietr. 2. 1297.

ZAUSCHNERIA Californica. Presl, Rel. Haenk. 2. 28, **t. 52.** Sp Veg. 4. 400. Hook. & Arn. Bot. Beechey, 140 & 340. Torr. & Gray, Walp. Rep. 2. 93. Benth. Bot. Sulph. 15; Pl. Hartw. 310. Lindl. in Jo Soc. 3. 241, **fig.** Fl. Serres, 4. 404, **t.** Ann. Gand, 1848, **t. 224.** Torrey Rep. 140; Pac. R. Rep. 7. 11; Mex. Bound. 65; Bot. Wilkes, 296. Pa Mag. 15. 195, **t.** Hook. Bot. Mag. **t. 4493.** Durand, Pl. Pratten. 87. Wright. 2. 56 (with var.); Ives's Rep. 12; Proc. Bost. Soc. Nat. Hist. 7. 1 & Hilg. in Pac. R. Rep. 5. 7. Wood, Bot. & Fl. 125. Boland. Cat. 12. King's Rep. 5. 104; Pl. Wheeler, 9. Coulter, Hayd. Rep. 1872, 767. R tenfl. 1872, 239. Brew. & Wats. Bot. Calif. 1. 218.

Z. Mexicana. Presl. l. c. Walp. l. c.

Var. **microphylla.** Gray; Brew. & Wats. Bot. Calif. 1. 218.

LOASACEÆ.

LA sinuata. Lagasca, Var. Sienc. Ann. 2. 141; Nov. Gen. & Spec. 11, m. & Schult. Syst. 5. 589. Spreng. Syst. 1. 832. Hook. Icon. t. **252.** ,y, Fl. 1. 536 & 696. Fenzl, Darst. vier Gatt. 37, t. **4** (Regensb. Denksch. orrey, Emory's Rep. 141; Mex. Bound. 66. Engelm. in Wisliz. Rep. 17. Vright. 1. 74 & 2. 59.

bera hispida. Nutt. in Journ. Acad. Philad. 7. 107.

E bartonioides. Zuccarini, Abhandl. Baier. Acad. 4². 5, t. **1**; Del. . Monac. 1844 (Linnæa, 18. 509). Gray, Pl. Lindh. 191; Pl. Wright. 's Rep. 12. Torrey, Mex. Bound. 67. — The genus carried to *Mentzelia* & Hook. Gen. Pl. 1. 804.

rma bartonioides. Walp. Rep. 5. 777. Hook. Bot. Mag. t. **4491.** Gray, Pl. Lindh. 192.

rma lobata. Hook. Icon. t. **234.** Walp. Rep. 5. 777.

perma rudis. Schauer, Linnæa, 20. 721. Walp. Ann. 1. 320. Parry, Am. Naturalist, 9. 144. Brew. & Wats. Bot. Calif. 1. 237.

. Torrey, Pac. R. Rep. 4. 53.

i urens. Gray, Proc. Am. Acad. 10. 71; Am. Naturalist, 9. 271.

LIA adherens. Benth. Bot. Sulph. 15. Walp. Rep. 5. 776. (Lower

ılis. Dougl.; Don, Mill. 3. 61. Torr. & Gray, Fl. 1. 534. Walp. Gray, Pl. Wright. 2. 59; Ives's Rep. 12; Am. Journ. Sci. 2. 33. 405; . Philad. 1863, 61, in part; Proc. Bost. Soc. Nat. Hist. 7. 146; Proc. 11. 137. Torrey, Stansb. Rep. 388; Pac. R. Rep. 4. 89 & 5. 360; Mex. in part; Bot. Wilkes, 301. Durand, Fl. Utah, 164. Anderson, Cat. . Watson, King's Rep. 5. 113, excl. vars.; Pl. Wheeler, 9. Porter, 1871, 483; Fl. Col. 47. Rothr. Pl. Wheeler, 40. Brew. & Wats. Bot.).

albicaulis. Hook. Fl. Bor.-Am. 1. 222; Lond. Journ. Bot. 6. 227. Eat.

hiana. Kellogg, Proc. Calif. Acad. 2. 99, f. **28.**

. Linn. Spec. 516. Willd. Spec. 2. 1175 & syn. Ait. f. Hort. Kew. 3. ıg. Syst. 2. 601. DC. Prodr. 3. 343. Gray, Proc. Am. Acad. 5. 158 & b. Fl. Brit. W. Ind. 298. Brew. & Wats. Bot. Calif. 1. 235.

ıulis. Torrey, Mex. Bound. 67, in part.

ta. Torr. & Gray, Fl. 1. 534. Walp. Rep. 2. 224. Dietr. 3. 85. Wat- Rep. 5. 114. Brew. & Wats. Bot. Calif. 1. 236.

a. Kellogg, Proc. Calif. Acad. 2. 33. (Lower California.)

ıa. Watson, Proc. Am. Acad. 11. 115 & 137. Brew. & Wats. Bot.).

micrantha. Hook. in Lond. Journ. Bot. 6. 227.

ıulis. Gray, Pl. Wright. 1. 74; Proc. Acad. Philad. 1863, 61, in part. t. 12.

ıulis, var. *integrifolia.* Watson, King's Rep. 5. 114. Coulter, Hayd. Rep.

ana. Nutt.; Torr. & Gray, Fl. 1. 533. Walp. Rep. 2. 223. Dietr. 3. 85. 146. Wood, Bot. & Fl. 128.

M. gracilenta. Torr. & Gray, Fl. 1. 534. Walp. Rep. 2. 224. Diet & Wats. Bot. Calif. 1. 236.

M. pectinata. Kellogg, Proc. Calif. Acad. 3. 40, f. 9.

M. albicaulis, var. *gracilenta.* Watson, King's Rep. 5. 114.

M. hirsutissima. Watson, Proc. Am. Acad. 12. 252. (Lower Ca

M. lævicaulis. Torr. & Gray, Fl. 1. 535. Gray, Pl. Fendl. 4 1. 73; Ives's Rep. 12; Proc. Am. Acad. 8. 384. Durand, Pl. Pratt Hilg. Pac. R. Rep. 5. 8. Cooper, same, 12. 52. Anderson, Cat Boland. Cat. 12. Watson, King's Rep. 5. 114; Pl. Wheeler, 9. Port 1871, 483. Coulter, same, 1872, 767. Torrey, Bot. Wilkes, 311. Bot. Calif. 237.

Bartonia lævicaulis. Dougl.; Hook. Fl. Bor.-Am. 1. 221, t. 69 3. 61. Nutt. in Journ. Acad. Philad. 7. 23. Hook. & Arn. Bot Eat. & Wr. 154. Walp. Rep. 2. 224. Dietr. 3. 87.

Bartonia parviflora. Dougl.; Hook. Fl. Bor.-Am. 1. 221. Don, M & Wr. 155.

Bartonia ornata. Hook. in Lond. Journ. Bot. 6. 226.

M. ornata. Torrey, Stansb. Rep. 387. Durand, Fl. Utah, 164.

M. Lindleyi. Torr. & Gray, Fl. 1. 533. Walp. Rep. 2. 224. Die rey, Pac. R. Rep. 4. 89. Wood, Cl.-Book, 358; Bot. & Fl. 128. I Bot. Calif. 1. 236.

Bartonia aurea. Lindl. Bot. Reg. 22, t. **1831.** D. Don, in Sweet, 2 ser. t. **357.** Hook. Bot. Mag. t. **3649.** Hook. & Arn. Bot. Beeche Orn. Fl. Gard. 1, t. **19.**

Creolobus aurea. Lilja, Fl. Sver. 67.

Chrysostoma aurea. Lilja, Fl. Sver. Suppl. 33; Linnæa, 15. 263.

M. micrantha. Torr. & Gray, Fl. 1. 535. Watson, Proc. Ar Brew. & Wats. Bot. Calif. 1. 236.

Bartonia micrantha. Hook. & Arn. Bot. Beechey, 343, t. **85.** V Dietr. 3. 87.

M. multiflora. Gray, Pl. Fendl. 48; Pl. Wright. 1. 74 & 2 Philad. 1863, 61. Torrey, Sitgr. Rep. 159; Pac. R. Rep. 4. 89 Porter, Fl. Col. 47. Parry, Am. Naturalist, 9. 271.

Bartonia multiflora. Nutt. Pl. Gambel. in Proc. Acad. Pl 1. 180.

M. nuda. Torr. & Gray, Fl. 1. 535; Pac. R. Rep. 2. 127. To Marcy's Rep. 286; Emory's Rep. 408; Pac. R. Rep. 4. 89. Pl. Lindh. 191; Pl. Wright. 1. 73; Am. Journ. Sci. 2. 33. 405 1863, 61. Engelm. Pl. Upp. Miss. 192. Anderson, Cat. Pl. Ne Rep. 1870, 476; Fl. Col. 47. Young, Fl. Texas, 282. Rothr

Bartonia nuda. Pursh, 328 & 749. Poir. Suppl. 5. 572. Nutt. Genera, 1. 299. James, Long's Exped. 2. 182. Spre rey, Ann. Lyc. N. Y. 2. 199. DC. Prodr. 3. 339. Don, M Veg. 6. 238. Dietr. 3. 86. Hook. in Lond. Journ. Bot. 6.

Torreya nuda. Eaton, Manual, 7 ed.

Touterea nuda. Eat. & Wr. 454.

M. oligosperma. Nutt. in Sims, Bot. Mag. t. **1760.** rey, Ann. Lyc. N. Y. 2. 199; Pac. R. Rep. 4. 89; Mex 3. 343. Don, Mill. 3. 65. Spach, Hist. Veg. 6. 240. Eat. & Wr. 318. Dietr. 3. 84. Gray, Pl. Fendl. 47;

1. 73 & 2. 59; Proc. Acad. Philad. 1863, 61; Manual, 184. Young, Fl. Texas, 282. Porter, Fl. Col. 47.

M. aurea. Nutt. Genera, 1. 300. James, Cat. 182. Torrey, Ann. Lyc. N. Y. 2. 199. Eat. & Wr. 318.

M. rhombifolia. Nutt.; Torr. & Gray, l. c. Walp. Rep. 2. 223. Dietr. 3. 85.

M. petiolata. Buckley, Proc. Acad. Philad. 1861, 455; fide Gray, same, 1862, 163.

M. ornata. Torr. & Gray, Fl. 1. 534. Torrey, Nicol. Rep. 150; Sitgr. Rep. 175. Gray, Pl. Fendl. 47; Pac. R. Rep. 12. 43. Engelm. Pl. Upp. Miss. 192. Pl. Bourgeau, 256. Porter, Hayd. Rep, 1870, 476, & 1871, 483. Brandegee, Fl. S. W. Col. 236. Thurber, Am. Agriculturist, 36. 61, fig.

B. decapetala. Pursh in Sims, Bot. Mag. t. 1487.

Bartonia ornata. Pursh, 326. Poir. Suppl. 5. 572. Bradbury, Cat. 336. Nutt. Genera, 1. 297. James, Long's Exped. 2. 182. Barton, Fl. N. Am. 3. 29, t. 81. Spreng. Syst. 2. 493. Torrey, Ann. Lyc. N. Y. 2. 199. DC. Prodr. 3. 339. Don, Mill. 3. 61. Spach, Hist. Veg. 6. 237. Nees, Pl. Neuwied, 9.

Torreya ornata. Eaton, Manual, 7 ed.

Touterea ornata. Eat. & Wr. 452.

M. pumila. Torr. & Gray, Fl. 1. 535. Hook. in Lond. Journ. Bot. 6. 227. Gray, Pl. Wright. 1. 73. Torrey, Emory's Rep. 140; Pac. R. Rep. 5. 360.

Bartonia pumila. Nutt.; Walp. Rep. 2. 225. Dietr. 3. 87.

M. Wrightii. Porter, Fl. Col. 47.

M. multiflora, var. Parry, Am. Naturalist, 9. 271.

M. chrysantha. Engelm. in Brandegee, Fl. S. W. Col. 237.

M. Torreyi. Gray, Proc. Am. Acad. 10. 72. Brew. & Wats. Bot. Calif. 1. 237.

M. tricuspis. Gray, Am. Naturalist, 9. 271. Brew. & Wats. Bot. Calif. 1. 237. Watson, Proc. Am. Acad. 12. 252.

M. Wrightii. Gray, Pl. Fendl. 48; Pl. Wright. 1. 73. Torrey, Mex. Bound. 67.

Bartonia Wrightii. Walp. Ann. 2. 656.

Myriophyllum Wrightii. Gray, Hall's Pl. Texas, 9.

PETALONYX nitidus. Watson, Am. Naturalist, 7. 300; Pl. Wheeler, 9. Brew. & Wats. Bot. Calif. 1. 238.

P. Parryi. Gray, Proc. Am. Acad. 10. 72. Parry, Am. Naturalist, 9. 144 & 271. Brew. & Wats. Bot. Calif. 1. 238.

P. Thurberi. Gray, Pl. Thurb. 319 (Regensb. Flora, 38. 587). Walp. Ann. 5. 5. Torrey, Mex. Bound. 67, t. 22. Watson, Pl. Wheeler, 9. Brew. & Wats. Bot. Calif. 1. 238.

SYMPETALIA aurea. Gray, Proc. Am. Acad. 12. 161.

TURNERACEÆ.

TURNERA Caroliniana.

Walteria (?) *Caroliniana.* Walter, 175.

T. cistoides. Pursh, 206; not Linn. Elliott, 1. 370. Nutt. Genera, 1. 204. Torr. & Gray, Fl. 1. 537. Eat. & Wr. 462. Wood, Cl.-Book, 362; Bot. & Fl. 129.

Piriqueta fulva. Chapman, 146.

? *Piriqueta glabra & tomentosa.* Chapman, 147.

? *T. glabra & tomentosa.* Wood, Bot. & Fl. 129.

PASSIFLORACEÆ.

CARICA Papaya. Linn. Spec. 1036. See syn. in DC. Prodr. 15¹. 414; Pritz[illegible] Index Icon. Bot. 1. 223 & 2. 67. Lindl. Bot. Reg. 6, **t. 459.** Hook. Bot. M[illegible] **t. 2898, 2899.** Roemer, Syn. Monogr. 2. 122. Griseb. Fl. Brit. W. Ind. 290.

Papaya vulgaris. DC. in Lam. Dict. 5. 2. Poir. in Lam. Ill. 3. 410, t. 8[illegible]: A. DC. Prodr. 15¹. 414; Geogr. Bot. 917. Nutt. Sylva, 3. 47, **t. 96.** Cooper, Smithson. Rep. 1858, 264.

Papaya Carica. Gaertn. Fruct. 2. 191, **t. 122.**

PASSIFLORA affinis. Engelm. in Gray, Pl. Lindh. 233. Gray, Pl. Wrig[illegible] 1. 75 & 2. 59. Walp. Ann. 2. 652. Torrey, Mex. Bound. 67. Masters, Mart. [illegible] Bras. 13¹. 554.

P. filipes. Benth. Pl. Hartw. 118. Masters, l. c. 553. (Northern Mexico.)

P. fœtida. Linn. Spec. 959. See syn. in Willd. Spec. 3. 619; Masters, l. c. [illegible]: Cav. Diss. 2, **t. 289.** DC. Prodr. 3. 331. Griseb. Fl. Brit. W. Ind. 294. — Torr[illegible]y Mex. Bound. 67.

P. gossypiifolia. Desv. in Ham. Prodr. 28. Willd. Hort. Berol. **t. 46.** Si[illegible]ns Bot. Mag. **t. 2619.** Lindl. Bot. Reg. **t. 1634.** Gray, Pl. Wright. 1. 75.

Dysosmia fœtida & gossypiifolia. Roemer, Syn. Monogr. 2. 149.

P. inamœna. Gray, Pl. Wright. 2. 59. Torrey, Pac. R. Rep. 4. 165. Mast[illegible]ers, l. c. 546.

P. incarnata. Linn. Spec. 959, in part (Amœn. Acad. 1. 230, **t. 10, f. 1. 9**). Medicus, Bot. Beobacht. 1783, 152. Jacquin, Ic. Rar. 1, **t. 187**; Coll. 1. **107.** Walter, 223. Lam. Dict. 3. 40. Ait. Hort. Kew. 3. 310. Cav. Diss. 2. 460, t. **293.** Willd. Spec. 3. 621. Michx. Fl. 2. 37. Nouv. Duham. 2. 50. Persoon, 2. **222.** Ker, Bot. Reg. 2, **t. 152.** Barton, Bot. Appx. 30, **t. 25.** Elliott, 2. 153. Spr[illegible]ng. Syst. 3. 39. Torrey, Compend. 253. DC. Prodr. 3. 329. Beck, Bot. 129. [illegible]on, Mill. 3. 53. Hook. Comp. Bot. Mag. 1. 46; Bot. Mag. **t. 3697.** Spach, Hist. [illegible]eg. 6. 272. Torr. & Gray, Fl. 1. 538; Pac. R. Rep. 2. 165. Eat. & Wr. 344. [illegible]ietr. 4. 746. Roemer, l. c. 175. Chapman, 147. Gray, Manual, 186; Hall's Pl. Texas, 9. Masters, l. c. 565.

P. lutea. Linn. Spec. 958 (Amœn. Acad. 1. 224, **t. 10, f. 13**). Jacquin, Ic. [illegible]ar. 3, **t. 607**; Coll. 2. 282. Walter, 223. Ait. Hort. Kew. 3. 308. Cav. Diss. 2. **444,** t. **267.** Willd. Spec. 3. 615. Michx. Fl. 2. 37. Persoon, 2. 221. Ker, Bot. [illegible]eg. t. **79.** Elliott, 2. 154. James, Cat. 185. Spreng. Syst. 3. 40. Torrey, Compend. 253. DC. Prodr. 3. 325. Beck, Bot. 129. Don, Mill. 3. 48. Hook. Comp. Bot. Mag. 1. 46. Spach, Hist. Veg. 6. 262. Torr. & Gray, Fl. 1. 538. Eat. & Wr. **344.** Dietr. 4. 742. Roemer, l. c. 174. Chapman, 147. Gray, Manual, 185; Hall's Pl. Texas, 9. Masters, l. c. 554.

P. Mexicana. Juss. Ann. Mus. 6. 108, **t. 38.** Spreng. Syst. 3. 38. DC. Prodr. 3. 324. Torrey, Mex. Bound. 67. Masters, l. c. 552. (Sonora.)

Cieca Mexicana. Roemer, l. c. 146.

P. suberosa. Linn. Spec. 958. See syn. in Willd. Spec. 3. 617; Masters, l. c. 578. DC. Prodr. 3. 325. Grisebach, Fl. Brit. W. Ind. 290. — Gray, Pl. Wright. 1. 75. Chapman, 147.

Cieca suberosa. Roemer, l. c. 146.

P. peltata. Bartram, Travels, 131. Eat. & Wr. 344.

angustifolia. Masters, l. c. 579.
angustifolia. Swartz, Prodr. 97. Willd. Spec. 3. 616. DC. Prodr. 3. 329. & Gray, Fl. 1. 539. Chapman, 148. Griseb. Fl. Brit. W. Ind. 291.
heterophylla. Ait. Hort. Kew. 3. 309. Jacq. Hort. Schœnb. 2. 28, **t. 181.**
longifolia. Lam. Dict. 3. 39. Cav. Diss. 2. 446, **t. 270.**

pallida. Masters, l. c. 579.
pallida. Linn. Spec. 955. Lindl. Bot. Reg. **t. 660.** DC. Prodr. 3. 323. . l. c.
Warei. Nutt. in Am. Journ. Sci. 5. 297. Torr. & Gray, Fl. 1. 539. Eat. 344. Chapman, 148.
ca Warei. Roemer, l. c. 146.

nuiloba. Engelm. in Gray, Pl. Lindh. 192. Gray, Pl. Wright. 1. 74 & 2. 59. Ann. 2. 653. Torrey, Mex. Bound. 67. Masters, l. c. 546.

CUCURBITACEÆ.

DANTHERA (?) undulata. Gray, Pl. Wright. 2. 60. Torrey, Pac. R. . II; Mex. Bound. 67. Naudin, Ann. Sci. Nat. 4. 6. 15. Walp. Ann. 4. 865.

UMIS ANGURIA, Linn. Griseb. Fl. Brit. W. Ind. 288.

ELO, Linn. See syn. in Naudin, l. c. 4. 11. 34.

Texanus. Naudin, Ann. Sci. Nat. 4. 12. 110 & 16. 160.

URBITA Californica. Torrey; Watson, Proc. Am. Acad. 11. 138; Bot. 1. 240.

gitata. Gray, Pl. Wright. 2. 60; Ives's Rep. 12. Torrey, Pac. R. Rep. Mex. Bound. 67. Naudin, Ann. Sci. Nat. 4. 6. 56, 12. 85, & 18. 178; Rev. 1863, 131, **t.** Walp. Ann. 4. 864. Watson, Pl. Wheeler, 9. Brew. & Wats. alif. 1. 239.

lmata. Watson, Proc. Am. Acad. 11. 137. Brew. & Wats. Bot. Calif. 1. 239.

PO, Linn. See syn. in Naudin, Ann. Sci. Nat. 4. 11. 29. — Gray, Pl. Fendl. uckerman, Josselyn's Rarities, 90.

rennis. Gray, Pl. Lindh. 193; Pl. Wright. 1. 75 & 2. 60; Ives's Rep. 12. , Marcy's Rep. 286; Pac. R. Rep. 4. 89; Mex. Bound. 67. Torr. & Gray, . Rep. 2. 164. Naudin, l. c. 4. 6. 54 & 70; Rev. Hort. 6. 53, **f. 27.** Porter, l. 49. Brew. & Wats. Bot. Calif. 1. 239.
. fœtidissima. HBK. Nov. Gen. 2. 123. Eat. & Wr. 215.
umis (?) perennis. James, Long's Exped. 2. 20 & 346. Torrey, Ann. Lyc. 2. 242. Seringe, DC. Prodr. 3. 302. Don, Mill. 3. 28. Torr. & Gray, Fl. Roemer, Syn. Monogr. 2. 80. Engelm. in Wisliz. Rep. 3. Gray, Pl. Fendl. orrey, Emory's Rep. 141 & 411. Dietr. 5. 362.

xana. Gray, Pl. Lindh. 193; Pl. Wright. 1. 75. Walp. Ann. 2. 646.
istemon Texanum. Scheele, Linnæa, 21. 586 & 22. 352. Naudin, Ann. Sci. . 6. 29.

RRUCOSA, Linn. Nutt. Genera, 2. 228. Torr. & Gray, Fl. 1. 544. Tucker- . c. 89.

LANTHERA dissecta. Arnott, Hook. Journ. Bot. 3. 280. Walp. Rep. ; Ann. 2. 642. Gray, Pl. Lindh. 193; Pl. Wright. 1. 75 & 2. 61. Torrey, Pac. p. 4. 89; Mex. Bound. 67. Naudin, l. c. 5. 6. 16.

Discanthera dissecta. Torr. & Gray, Fl. 1. 697. Roemer, Syn. Monogr. 2. 10— Gray, Pl. Fendl. 54. Young, Fl. Texas, 284.

Echinocystis pedata. Scheele, Linnæa, 21. 587.

ECHINOCYSTIS lobata. Torr. & Gray, Fl. 1. 542. Arnott, Hook. Jou— Bot. 3. 276. Torrey, Fl. N. Y. 1. 250, t. 30. Roemer, l. c. 2. 83. Gray, Pl. Fen — 54; Manual, 187. Parry, Pl. Minn. 612. Engelm. Pl. Upp. Miss. 193. Coop— Pac. R. Rep. 12. 43. Naudin, l. c. 4. 12. 155 & 16. 187. Pl. Bourgeau, 256. P - ter, Fl. Col. 49.

Momordica echinata. Muhl. Ind. Fl. Lanc. 180. Willd. Spec. 4. 605. P— Suppl. 3. 723. Pursh, 444. Nutt. Genera, 2. 228. Torrey, Compend. 362. Spre— Syst. 3. 14. Seringe, DC. Prodr. 3. 312. Hook. Fl. Bor.-Am. 1. 220. Beck, B— 128. Don, Mill. 3. 36. Eat. & Wr. 321.

Sicyos lobatus. Michx. Fl. 2. 217. Poir. Dict. 7. 155.

Momordica lobata. Seringe, DC. Prodr. 3. 312.

Hexameria echinata. Torr. & Gray, in Torr. Rep. Pl. N. Y. 187.

ELATERIUM Bigelovii. Watson, Proc. Am. Acad. 12. 252.

Melothria pendula. Brew. & Wats. Bot. Calif. 1. 240, excl. char.

E. Coulteri. Gray, Pl. Wright. 2. 61. Walp. Ann. 4. 865. Torrey, — Bound. 68.

? *Sicyos eremocarpus.* Schauer, Linnæa, 20. 722. Walp. Ann. 1. 317.

E. minimum. Watson, Proc. Am. Acad. 12. 252.

Marah minima. Kellogg, Proc. Calif. Acad. 2. 18.

E. (?) Wrightii. Gray, Pl. Wright. 2. 61. Walp. Ann. 4. 865. Torrey, — Bound. 68.

LAGENARIA VULGARIS. Seringe, DC. Prodr. 3. 299. Torr. & Gray, Fl. 1— Gray, Pl. Lindh. 194. Naudin, l. c. 4. 12. 91. A. DC. Geogr. Bot. 2. 897.

Cucurbita Lagenaria, Linn. Nutt. Genera, 2. 228. Elliott, 2. 662.

LUFFA ACUTANGULA, Roxb. See Naudin, l. c. 4. 12. 122. Gard. Chronic 2. 2. 178 & 782.

MEGARRHIZA Californica. Torrey, Pac. R. Rep. 6. 74 & 7. 11. Gray, Iv Rep. 12; Proc. Bost. Soc. Nat. Hist. 7. 146. Watson, Proc. Am. Acad. 11. Brew. & Wats. Bot. Calif. 1. 241. Gray, Am. Journ. Sci. 3. 14. 21, fig. 1, 2 mination).

Echinocystis fabacea. Naudin, Ann. Sci. Nat. 4. 12. 154, t. 9, & 16. 188. & Hook. Gen. Pl. 1. 835. Torrey, Bot. Wilkes, 302, in part.

? *M. Oregana.* Bolander, Cat. 13.

M. Guadalupensis. Watson, Proc. Am. Acad. 11. 115 & 138. Brew. Bot. Calif. 1. 242. (Guadalupe Island.)

M. Marah. Watson, l. c. 138. Brew. & Wats. l. c. 241.

Marah muricatus. Kellogg, Proc. Calif. Acad. 1. 38.

M. muricata. Watson, l. c. 139. Brew. & Wats. l. c. Gray, l. c. 24.

Echinocystis muricata. Kellogg, Proc. Calif. Acad. 1. 57.

M. Oregona. Torrey, Pac. R. Rep. 6. 74. Cooper, same, 31 & 61. 138. Brew. & Wats. l. c. Gray, l. c.

Sicyos angulatus. Hook. Fl. Bor.-Am. 1. 220, in part.

— Torr. & Gray, Fl. 1. 542. Walp. Rep. 2. 204.

MELOTHRIA grandifolia. Torr. & Gray, Fl. 1. 541. Walp. Rep. 2. 195. Roemer, l. c. 2. 28. Dietr. 5. 363.

M. pendula. Linn. Spec. 35. Walter, 66. Ait. Hort. Kew. 1. 54. Lam. Ill. 1. 102, t. 28, f. 3. Desrous. in Lam. Dict. 4. 87. Willd. Spec. 1. 189. Michx. Fl. 2. 217. Persoon, 2. 592. Elliott, 2. 662. Torrey, Compend. 361. Spreng. Syst. 3. 47. Seringe, DC. Prodr. 3. 313. Beck, Bot. 128. Don, Mill. 3. 37. Hook. Comp. Bot. Mag. 1. 46. Spach, Hist. Veg. 6. 224. Torr. & Gray, Fl. 1. 541. Eat. & Wr. 317. Arnott, Hook. Journ. Bot. 3. 274. Roemer, Syn. Monogr. 2. 27. Gray, Pl. Wright. 1. 75 & 2. 69; Manual, 187. Dietr. 5. 363. Torrey, Pac. R. Rep. 4. 88. Naudin, Ann. Sci. Nat. 4. 12. 148. Chapman, 149. Brew. & Wats. Bot. Calif. 1. 240, excl. habit. California.

Cucumis glaber. Walter, 240.

M. nigra. Raf. Ann. Nat. 1820; Med. Bot. 2. 242; New Flora, 4. 14.

? *M. repanda & punctata.* Raf. New Flora, 4. 15.

? *M. chlorocarpa.* Engelm.; Gray, Hall's Pl. Texas, 9.

MOMORDICA BALSAMINA, Linn. Eat. & Wr. 321.

Neurosperma cuspidata. Raf. Journ. Phys. 1819, 101. Spreng. Neue Entdeck. 1. 144. Seringe, DC. Prodr. 3. 312. Torr. & Gray, Fl. 1. 544. Roemer, l. c. 2. 60.

Neurosperma balsamina. Raf. Med. Bot. 2. 245.

M. CHARANTIA, Linn. Torr. & Gray, Fl. 1. 543. Roemer, l. c. 56.

SICYDIUM Lindheimeri. Gray, Pl. Lindh. 194; Pl. Wright. 1. 75 & 2. 60; Hall's Pl. Texas, 9. Walp. Ann. 2. 643. Torr. & Gray, Pac. R. Rep. 2. 164. Torrey, Mex. Bound. 67. Naudin, Ann. Sci. Nat. 4. 12. 144, & 16. 166, t. 1, B.

Bryonia Abyssinica. Gouault, Rev. Hort. 1853, 61, t.

Var. tenuisectum. Gray, Pl. Wright. 1. 75 & 2. 60. Walp. Ann. 4. 854. Torrey, Mex. Bound. 67. Naudin, l. c. 144.

S. tenellum. Naudin, l. c. 4. 16. 167, t. 1, A.

S. tripartitum. Naudin, l. c. 166.

S. sp. nov. ? Torrey, Marcy's Rep. 286.

SICYOS angulatus. Linn. Spec. 1013. Hill, Veg. Syst. 9. 16, t. 15, f. 1. Ait. Hort. Kew. 3. 386. Gaertn. Fruct. 2, t. 88. Schkuhr, Handb. 3. 303, t. 316. Michx. Fl. 2. 217. Willd. Spec. 4. 625. Poir. Dict. 7. 154. Persoon, 2. 595. Lam. Ill. 3. 377, t. 796, f. 2. Pursh, 444. Elliott, 2. 663. Spreng. Syst. 3. 47. Torrey, Compend. 362; Ann. Lyc. N. Y. 2. 242; Fl. N. Y. 1. 249. Seringe, DC. Prodr. 3. 309. Hook. Fl. Bor.-Am. 1. 220, in part. Beck, Bot. 128. Don, Mill. 3. 34. Spach, Hist. Veg. 6. 250. Darling. Fl. Cestr. 554. Torr. & Gray, Fl. 1. 541. Eat. & Wr. 424. Bigel. Fl. Bost. 3 ed. 365. Roemer, l. c. 2. 103. Gray, Pl. Lindh. 193; Manual, 186. Dietr. 5. 372. Chapman, 149.

Elaterium trifoliatum. Linn. Mant. 123. Lam. Dict. 2. 348. Willd. Spec. 4. 626. Persoon, 2. 532. Spreng. Syst. 3. 47. Don, Mill. 3. 35. Torr. & Gray, Fl. 1. 697. Roemer, l. c. 2. 83.

Cucumis (?) 2. Walter, 240.

Sicyoides angulata. Moench, Meth. 513.

? *S. vitifolius.* Willd. Spec. 4. 626. Seringe, DC. Prodr. 3. 309. Don, Mill. 3. 34.

S. acutus. Raf. Fl. Lud. 113. Seringe, DC. Prodr. 3. 309. Don, Mill. 3. 34. Roemer, l. c. 2. 104. Dietr. 5. 372.

S. parviflorus. Willd. Spec. 4. 626. HBK. Nov. Gen. 2. 119. Seringe, DC. Prodr. 309. Gray, Pl. Wright. 2. 62.

SICYOSPERMA gracile. Gray, Pl. Wright. 2. 62. Naudin, Ann. Sci. Nat. 4. 12. 163. Walp. Ann. 4. 867.

TRIANOSPERMA Boykinii. Roemer, Syn. Monogr. 2. 45. Naudin, l. c. 16. 196.

Arkezostis quinqueloba. Raf. New Flora, 4. 100.

Bryonia Boykinii. Torr. & Gray, Fl. 1. 540. Walp. Rep. 2. 198. Chapman, 148. Wood, Cl.-Book, 364; Bot. & Fl. 130.

Bryonia trispora. Nutt.; Arnott in Hook. Journ. Bot. 3. 276.

DATISCACEÆ.

DATISCA glomerata. Benth. & Hook. Gen. Pl. 1. 845. Brew. & Wats. Bot. Calif. 1. 242.

Tricerastes glomerata. Presl, Rel. Haenk. 2. 88, t. **64.** Benth. Pl. Hartw. **334.** Dietr. 5. 433. Lindl. Veg. Kingd. 316, f. **219.** Torrey, Pac. R. Rep. 4. 135. A. DC. Prodr. 15¹. 411. Bolander, Cat. 26.

CACTACEÆ.

ANHALONIUM fissuratum. Engelm. Cact. Mex. Bound. 75.

Mamillaria fissurata. Engelm. Syn. Cact. in Proc. Am. Acad. 3. 270 (**14** of reprint); Cact. Mex. Bound. 17, t. **16.** Walp. Ann. 5. 38.

CACTUS *Bleo & cylindricus;* Opuntia arborescens.

ferox; Opuntia Missouriensis.

fragilis; Opuntia fragilis.

humifusus; Opuntia vulgaris.

mamillaris; Mamillaria Missouriensis.

C. Opuntia; Opuntia Rafinesquii & vulgaris.

polyanthus; Opuntia polyantha.

pusillus & stellatus; Mamillaria pusilla.

viviparus; Mamillaria vivipara.

CEREUS adustus. Engelm. in Gray, Pl. Fendl. 50; Syn. Cact. 280 (24). Salm, Cact. Hort. Dyck. 191. Labouret, Monogr. Cact. 319. Walp. Ann. 5. 43. (Chihuahua.)

Echinocereus adustus & radians. Engelm. in Wisliz. Rep. 20. Walp. Ann. 3. 896.

C. Berlandieri. Engelm. Syn. Cact. 286 (30 & 59); Cact. Mex. Bound. 38, t. **58.** Walp. Ann. 5. 46. Young, Fl. Texas, 275.

C. cæspitosus. Engelm. Pl. Lindh. in Journ. Bost. Soc. Nat. Hist. 5. 247 (reprint 39), & 6. 202; Gray, Pl. Fendl. 50; Syn. Cact. 280 (24); Cact. Mex. Bound. 32, t. **43, 44.** Dietr. Allg. Gart. Zeit. 16. 18. Salm, Cact. Hort. Dyck. 191. Torr. & Gray, Pac. R. Rep. 2. 165. Engelm. & Bigel. Pac. R. Rep. 4. 32. Walp. Ann. 5. 43. Gray, Hall's Pl. Texas, 9. Young, Fl. Texas, 274. Brandegee, Fl. S. W. Col. 237.

Echinopsis pectinata. Fennel, Allg. Gart. Zeit. 11. 282. Pfeiffer, Abbild. Cact. 2, t. **10.**

Echinocereus cæspitosus. Engelm. in Wisliz. Rep. 26. Scheele, Roemer's Texas, 435. Walp. Ann. 3. 896.

Echinocactus Reichenbachii. Tersch. Suppl. Cact. 2. Walp. Rep. 2. 320.

Echinopsis Reichenbachiana, Hort.

C. Reichenbachianus. Lab. Monogr. Cact. 318.

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olor. Schott; Engelm. in Pac. R. Rep. 4, errata and notes, ii.
staneus. Engelm. Pl. Lindh. 203.
unthus. Engelm.; Bigelow, Pac. R. Rep. 4. 35 & 36. Engelm. Syn. (22); Cact. Mex. Bound. 29, t. **37, 38**. Walp. Ann. 5. 42. Young, Fl. 3.
deus. Bigelow, Pac. R. Rep. 4. 36. Engelm. in Ives' Rep. 13. Porter,).
niceus, var. *conoideus*. Engelm. & Bigel. Pac. R. Rep. 4. 35, t. **4**, f. **4, 5**. Syn. Cact. 284 (28).
emeri. Muhlenpf. in Allg. Gart. Zeit. 16. 19 (Bot. Zeit. 6. 597), not Enheele, Roem. Texas, 435.
ides. Engelm.; Bigel. in Pac. R. Rep. 4. 36. Engelm. Syn. Cact. 279 t. Mex. Bound. 31, t. **42**. Walp. Ann. 5. 42.
canthus. Engelm. in Gray, Pl. Fendl. 50; Syn. Cact. 279 (23), excl. t. Mex. Bound. 30, t. **39–41**. Salm, Cact. Hort. Dyck. 193. Labouret, Cact. 321. Walp. Ann. 5. 42. Bigelow, Pac. R. Rep. 4. 36. Young, Fl. 4.
ereus dasyacanthus. Engelm. in Wisliz. Rep. 16. Walp. Ann. 3. 895.
exispinus. Monville, Cat. 1846, fide Lab. l. c.
s. Engelm. Syn. Cact. 282 (26); Cact. Mex. Bound. 36, t. **50**. Walp. . Young, Fl. Texas, 274.
yi. Engelm. in Am. Journ. Sci. 2. 14. 338; Syn. Cact. 286 (30); Cact. nd. 40, t. **60**, f. **1–4**; Bot. Calif. 1. 247. Bigelow, Pac. R. Rep. 4. 36. n. 5. 46.
manni. Parry; Engelm. in Am. Journ. Sci. l. c.; Syn. Cact. 283 (27); c. Bound. 36, t. **57**; Trans. Acad. St. Louis, 2. 199; King's Rep. 5. 117; . 1. 246; Simpson's Rep. 440. Bigelow, Pac. R. Rep. 4. 36. Walp. Ann. atson, Pl. Wheeler, 9.
rysocentrus. Engelm. & Bigel. in Pac. R. Rep. 4. 35, t. **5**, f. **8–10**. Syn. Cact. 283 (27). Walp. l. c.
riegatus. Engelm. & Bigel. l. c. f. **4–7**. Engelm. l. c. Walp. l. c.
canthus. Engelm. in Gray, Pl. Fendl. 50; Syn. Cact. 282 (26); Cact. nd. 34. Salm, Cact. Hort. Dyck. 188. Lab. Monogr. Cact. 314. Posel-Gart. Zeit. 21. 133. Bigelow, Pac. R. Rep. 4. 36. Walp. Ann. 5. 44.
cereus enneacanthus. Engelm. in Wisliz. Rep. 27. Walp. Ann. 3. 896.
eri. Engelm. in Gray, Pl. Fendl. 50 & 51; Syn. Cact. 281 (25); Cact. nd. 33, t. **51–53**; Ives' Rep. 13. Walp. Ann. 2. 684 & 5. 43. Engelm. & . R. Rep. 4. 33. Bigelow, same, 36. Porter, Fl. Col. 48.
illaria fasciculata. Engelm. in Emory's Rep. 156, f. **2**.
teus. Engelm. in Emory's Rep. 158; Am. Journ. Sci. 2. 14. 335 & 17. 231 . 12. 616); Syn. Cact. 287 (31); Cact. Mex. Bound. 42, t. **61, 62** & **front.**; . 1. 247. Thurber in Gray, Pl. Thurb. 302 & 305. Fl. Serres, 10. 24, **fig.**, t. **1600**. Bigelow, Pac. R. Rep. 4. 12. Engelm. & Bigel., same, 36. n. 5. 46. Lemaire, Ill. Hort. 9, Misc. 95. Marcou, Journ. Hort. France,

eus Engelmanni. Lemaire, l. c. 9, Misc. 97.
anthus. Engelm. & Bigel. Pac. R. Rep. 4. 33, t. **5**, f. **2, 3**. Bigelow, Engelm. Syn. Cact. 283 (27). Walp. Ann. 5. 44. Porter, Fl. Col. 48.

C. Greggii. Engelm. in Wisliz. Rep. 18; Emory's Rep. 156, **f. 6**; **Am. Jour** 2. 14. 339 & 446; Syn. Cact. 287 (31); Cact. Mex. Bound. 40, **t. 63, 64.** Ann. 3. 894 & 5. 46. Bigelow, Pac. R. Rep. 4. 36. Young, Fl. Texas, 276.

C. Pottsii. Salm, Cact. Hort. Dyck. 208. Labouret, Monogr. **Cact** Scheer, Seem. Bot. Herald, 293.

Var. **transmontanus.** Engelm. Syn. Cact. l. c.; Cact. Mex. Bound. 41, **t.**

C. hexaedrus. Engelm. & Bigel. in Pac. R. Rep. 4. 34, **t. 5, f. 1.** Bigelow, 36. Engelm. Syn. Cact. 285 (29). Walp. Ann. 5. 45.

C. longisetus. Engelm.; Bigelow, Pac. R. Rep. 4. 36. **Engelm. Syn. Ca** (24); Cact. Mex. Bound. 32, **t. 45.** Walp. Ann. 5. 43.

C. Mohavensis. Engelm. & Bigel. Pac. R. Rep. 4. 33, **t. 4, f. 8.** Bigelow, 36. Engelm. Syn. Cact. 281 (25). Walp. Ann. 5. 43.

Var. (?) **Zuniensis.** Engelm. & Bigel. l. c., **f. 9.** Engelm. l. c. Walp. l. c

C. MONOCLONOS, DC? Chapman, 144.

C. paucispinus. Engelm.; Bigelow, Pac. R. Rep. 4. 34 & 36. Engelm. Cact. 285 (29); Cact. Mex. Bound. 37, **t. 56.** Walp. Ann. 5. 45. Youn Texas, 275. Porter, Fl. Col. 49.

C. pectinatus. Engelm. in Gray, Pl. Fendl. 50; Syn. Cact. 279 (23); Mex. Bound. 32. Salm, Cact. Hort. Dyck. 192. Scheer, Seem. Bot. Herald (Northern Mexico.)

Echinocactus pectinatus. Scheidweil, Bull. Brux. 5. 492. Walp. Rep. 2. 321

Echinocereus pectinatus. Engelm. in Wisliz. Rep. 25. Walp. Ann. 3. 896.

Echinocactus pectiniferus. Lemaire, Cact. Nov. 25. Walp. Rep. 2. 322. Bot. Mag. **t. 4190.**

C. pectiniferus. Labouret, Monogr. Cact. 320.

Var. (?) **armatus.** Poselger, Allg. Gart. Zeit. 21. 134. Engelm. Syn. Ca Walp. Ann. 5. 43.

Var. (?) **rigidissimus.** Engelm. l. c.; Bot. Mex. Bound. 31. Walp. l. c.

C. phœniceus. Engelm. in Bigel. Pac. R. Rep. 4. 34, **t. 4, f. 1–3.** Bigelow, 36. Engelm. Syn. Cact. 284 (28); Ives' Rep. 13. Walp. Ann. 5. 45. Port Col. 49.

Echinopsis octacantha. Muhlenpf. in Allg. Gart. Zeit. 16. 19 (Bot. Zeit. 6. Scheele, Roem. Texas, 435. Walp. Ann. 2. 683.

Echinocereus coccineus. Engelm. in Wisliz. Rep. 9. Walp. Ann. 2. (3. 895.

C. coccineus. Engelm. in Gray, Pl. Fendl. 50 & 51, not DC., nor Salm. Cact. Hort. Dyck. 190. Lab. Monogr. Cact. 316.

C. Rœmerii. Engelm. in Gray, Pl. Fendl. 50; Gray, Pl. Lindh. 204; Syn. 285 (29). Salm, Cact. Hort. Dyck. 189. Lab. l. c. Walp. Ann. 5. 45.

Mamillaria aggregata. Engelm. in Emory's Rep. 155, **f. 1.**

C. polyacanthus. Engelm. in Gray, Pl. Fendl. 50; Cact. Mex. Boun **t. 54, 55**; Syn. Cact. 284 (28). Salm, Cact. Hort. Dyck. 189. Lab. Monogr. 315. Bigelow, Pac. R. Rep. 4. 36. Walp. Ann. 5. 45.

Echinocereus polyacanthus. Engelm. in Wisliz. Rep. 20. Walp. Ann. 3. 89

C. princeps. Hort. Wurtzb.; fide Pfeiffer, Enum. Cact. 108. Salm, Cact. Dyck. 49. Lab. l. c. 373. Engelm. in Trans. Acad. St. Louis, 2. 202.

C. variabilis. Engelm. in Gray, Pl. Lindh. 205, not Pfeiff.; Syn. Cact. 287 Cact. Mex. Bound. 40, **t. 60, f. 1–4.** Young, Fl. Texas, 276.

? *C. Vasmerii.* Young, Fl. Texas, 276.

cumbens. Engelm. in Gray, Pl. Fendl. 50; Gray, Pl. Lindh. 203; Syn. 36 (30); Cact. Mex. Bound. 38, t. **59, f. 1–11.** Walp. Ann. 2. 683 & 5. 46. Fl. Texas, 275.

tteri. Engelm. Cact. Mex. Bound. 33, t. **41, f. 3–5**; Proc. Am. Acad.

asyacanthus, var. *minor*. Engelm. Syn. Cact. 279 (23).

ipinus. Engelm. in Gray, Pl. Fendl. 50; Syn. Cact. 280 (24). Salm, Cact. yck. 193. Lab. Monogr. Cact. 320. Walp. Ann. 5. 43. (Chihuahua.)

ocereus rufispinus. Engelm. in Wisliz. Rep. 20. Walp. Ann. 3. 896.

ottii. Engelm. Syn. Cact. 288 (32); Cact. Mex. Bound. 44, t. **74, f. 16** Bot. Calif. 1. 247. Walp. Ann. 5. 47.

—— ? Bigelow, Pac. R. Rep. 4. 37.

mineus. Engelm. Syn. Cact. 282 (26); Cact. Mex. Bound. 35, t. **46, 47,** Bigelow, l. c. 36. Walp. Ann. 5. 44.

rberi. Engelm. in Am. Journ. Sci. 2. 17. 234; Syn. Cact. 288 (32); Cact. ound. **44, t. 74, f. 15** (seed); Fl. Calif. 1. 247. Thurber, in Gray, Pl. 302. Walp. Ann. 5. 47. Fl. Serres, 10. 29.

NGULARIS, Haworth ? Chapman, 144.

ochidiatus. Engelm. in Gray, Pl. Fendl. 50 & 51; Syn. Cact. 283 (27). nn. 5. 45. Engelm. & Bigel. in Pac. R. Rep. 4. 34, t. **4, f. 6, 7.**

ocereus triglochidiatus. Engelm. in Wisliz. Rep. 9. Walp. Ann. 3. 895.

rosus. Poselger, Allg. Gart. Zeit. 21. 135. Engelm. Syn. Cact. 286 act. Mex. Bound. 39 & 76, t. **59, f. 12.** Walp. Ann. 5. 46. Young, Fl. 275.

liflorus. Engelm. in Gray, Pl. Fendl. 50; Syn. Cact. 278 (22); Trans. St. Louis, 2. 199; King's Rep. 5. 118; Simpson's Rep. 440. Salm, Cact. yck. 192. Lab. Monogr. Cact. 319. Walp. Ann. 5. 42. Bigelow, Pac. 4. 32 & 36. Young, Fl. Texas, 273. Watson, Pl. Wheeler, 9. Porter, 48.

ocereus viridiflorus. Engelm. in Wisliz. Rep. 7. Walp. Ann. 3. 895.

ylindricus. Engelm. Cact. Mex. Bound. 28, t. **36**; Syn. Cact. l. c. Walp. 42.

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ornicus; Opuntia serpentina.
eus; phœniceus.
lor; cæspitosus.
canthus; Rœtteri.
rispinus; dasyacanthus.
atus; cæspitosus.
iferus; pectinatus.

C. phœniceus; conoideus.
Pottsii; Greggii.
Reichenbachianus; cæspitosus.
Rœmeri; conoideus, phœniceus.
variabilis & *Vasmerii*; princeps.
—— ?; Schottii.

IOCACTUS bicolor. Galeotti; Pfeiffer, Abbild. Cact. 2, t. **25.** Salm, ort. Dyck. 173. Lab. Monogr. Cact. 259. Scheer, Seem. Bot. Herald, 291. Fl. Texas, 280. (Northern Mexico.)

lchottii. Engelm. Syn. Cact. 277 (21); Cact. Mex. Bound. 27. Walp. 41.

rihamatus. Engelm. Syn. Cact. 271 (15); Cact. Mex. Bound. 19, t. **18,** mpson's Rep. 437. Walp. Ann. 5. 38.

E. Californicus. Monville, Cat. 1846. Lab. Monogr. Cact. 199. Engelm. in Am. Journ. Sci. 2. 14. 338. (Lower California ?)

E. cylindraceus. Engelm. Pac. R. Rep. 4. 32; Syn. Cact. 275 (19); Cact. Mex Bound. 25, t. **30**; Bot. Calif. 1. 245. Walp. Ann. 5. 40. Fenzi, Bull. Soc. Tosc Ortic. 2. 54, f. **7.**

E. viridescens, var. (?) *cylindraceus.* Engelm. in Am. Journ. Sci. 2. 14. 338.

E. Emoryi. Engelm. in Emory's Rep. 156, f. **5**; Syn. Cact. 275 (19); Cact. Mex Bound. 23, t. **28**; Bot. Calif. 1. 245. Engelm. & Bigel. Pac. R. Rep. 4. 31, t. f. **3.** Walp. Ann. 5. 40.

E. horizonthalonius. Lemaire, Cact. Nov. 19. Walp. Rep. 2. 317. Salm, Cact Hort. Dyck. 146. Lab. Monogr. Cact. 179. Engelm. Cact. Mex. Bound. 75.

E. equitans. Scheidweil, Bull. Brux. 6². 2. Walp. Rep. 2. 323.

Var. **centrispinus.** Engelm. Syn. Cact. 276 (20); Cact. Mex. Bound. 26, t. **31 32, f. 1-5.** Walp. Ann. 5. 41.

E. laticostatus. Engelm. & Bigel. Pac. R. Rep. 4. 32.

E. intertextus. Engelm. Syn. Cact. 277 (21); Cact. Mex. Bound. 27, t. **34.** Walp. Ann. 5. 41.

Var. **dasyacanthus.** Engelm. Syn. Cact. l. c.; Cact. Mex. Bound. 28, t. **35, f. 1-5.** Walp. l. c.

E. Johnsoni. Parry; Engelm. in King's Rep. 5. 117.

E. longihamatus. Galeotti; Pfeiffer, Abbild. Cact. 2, t. **16.** Salm, Cact. Hort. Dyck. 152. Lab. Monogr. Cact. 201. Hook. Bot. Mag. t. **4632.** Scheer, Seem. Bot. Herald, 290. Engelm. Syn. Cact. 273 (17); Cact. Mex. Bound. 22 & 75, t. **21-24.** Walp. Ann. 5. 39.

E. flexispinus. Engelm. in Wisliz. Rep. 27. Walp. Ann. 3. 894.

E. setispinus, var. *longehamatus.* Poselger, Allg. Gart. Zeit. 21. 119.

Var. **gracilispinus.** Engelm. Syn. Cact. l. c.; Cact. Mex. Bound. 22. Walp. Ann. 5. 40.

E. hamatocanthus. Muhlenpf. in Allg. Gart. Zeit. 14. 371. Walp. Ann. 1. 333.

Var. **brevispinus.** Engelm. ll. cc. Walp. l. c.

E. papyracanthus. Engelm. Trans. Acad. St. Louis, 2. 202; Simpson's Rep. 437.

Mamillaria papyracantha. Engelm. in Gray, Pl. Fendl. 49; Syn. Cact. 264 (8). Walp. Ann. 2. 680.

E. Parryi. Engelm. Pac. R. Rep. 4. 32; Syn. Cact. 276 (20); Cact. Mex. Bound. 25, t. **32, f. 6, 7.** Walp. Ann. 5. 41. (Chihuahua.)

E. polyancistrus. Engelm. & Bigel. Pac. R. Rep. 4. 29, t. **2, f. 1, 2.** Engelm. Syn. Cact. 272 (16); King's Rep. 5. 116; Bot. Calif. 1. 245. Walp. Ann. 5. 39.

E. polycephalus. Engelm. & Bigel. Pac. R. Rep. 4. 31, t. **3, f. 4-6.** Engelm. Syn. Cact. 276 (20); Cact. Mex. Bound. 25; King's Rep. 5. 117; Bot. Calif. 1. 246. Walp. Ann. 5. 41. Watson, Pl. Wheeler, 9.

E. pubispinus. Engelm. in Trans. Acad. St. Louis, 2. 199; King's Rep. 5. 117; Simpson's Rep. 439.

E. Scheerii. Salm, Cact. Hort. Dyck. 155. Scheer in Seem. Bot. Herald, 290. Lab. Monogr. Cact. 204. Engelm. Syn. Cact. 271 (15); Cact. Mex. Bound. 18, t. **17.** Walp. Ann. 5. 38.

E. setispinus. Engelm. in Gray, Pl. Lindh. 201; Syn. Cact. 272 (16); Cact. Mex. Bound. 21 & 75, t. **20.** Dietr. Allg. Gart. Zeit. 16. 18 & 19. 44. Scheele, Roem.

as, 435. Salm, Cact. Hort. Dyck. 153. Lab. Monogr. Cact. 203. Walp. Ann. Gray, Hall's Pl. Texas, 9.

. hamatus. Muhlenpf. in Allg. Gart. Zeit. 16. 18 (Bot. Zeit. 6. 597). Scheele, n. Texas, 435.

. Muhlenpfordtii. Fennel, Allg. Gart. Zeit. 15. 65. Walp. Ann. 1. 334.

Cachetianus. Lem. in Cels. Cat.

setaceus. Engelm. in Gray, Pl. Lindh. 201; Syn. Cact. l. c. Walp. l. c.

setispinus. Engelm. in Pl. Lindh. 246 (38).

mapsoni. Engelm. in Trans. Acad. St. Louis, 2. 197; King's Rep. 5. 117; Rep. 1871, 484; Simpson's Rep. 437, t. **1, 2.** Porter, Fl. Col. 48. Gard. icle, 2. 6. 202, f. **60.** Helmsley, The Garden, 11. 274, t. **68.**

minor. Engelm. in Simpson's Rep. 437.

uatus. Dietr. Allg. Gart. Zeit. 19. 345 (Bot. Zeit. 12. 387). Engelm. Syn. 273 (17); Cact. Mex. Bound. 21, t. **74,** f. **11–14** (seeds). Walp. Ann. 5. 39.

Treculianus. Lab. Monogr. Cact. 202.

setispinus, vars. *sinuatus* & *robustus.* Poselger, Allg. Gart. Zeit. 21. 119.

exensis. Hoepf. in Allg. Gart. Zeit. 15. 297. Engelm. in Wisliz. Rep. 29; Pl. Lindh. 202; Syn. Cact. 276 (20); Cact. Mex. Bound. 27, t. **33.** Scheele, m. Texas, 435. Salm, Cact. Hort. Dyck. 150. Lab. Monogr. Cact. 196. Poer, l. c. 118. Torr. & Gray, Pac. R. Rep. 2. 165. Engelm. & Bigel. in same, 2. Walp. Ann. 5. 41. Gray, Hall's Pl. Texas, 9. Young, Fl. Texas, 279.

E. Lindheimeri. Engelm. Pl. Lindh. 246 (38). Dietr. Allg. Gart. Zeit. 16. 18.

uncinatus. Hoepf. in Foerst. Handb. 321. Pfeiffer, Abbild. Cact. 2, t. **18.** n, Cact. Hort. Dyck. 153. Lab. Monogr. Cact. 201. Scheer, Seem. Bot. Her- 290. Engelm. Cact. Mex. Bound. 21, t. **74,** f. **9** (seeds).

E. ancylacanthus. Monville, Cat. 1846, fide Lab. l. c.

r. **Wrightii.** Engelm. Syn. Cact. 272 (16); Cact. Mex. Bound. 20, t. **74,** f. **10** ls). Walp. Ann. 5. 39.

nguispinus. Engelm. in Wisliz. Rep. 27. Salm, Cact. Hort. Dyck. 154. Monogr. Cact. 203. (Chihuahua.)

iridescens. Nutt.; Torr. & Gray, Fl. 1. 554. Engelm. in Am. Journ. Sci. 338, excl. var.; Syn. Cact. 275 (19); Cact. Mex. Bound. 24, t. **29**; Ives' Rep. Bot. Calif. 1. 245. Walp. Ann. 5. 40. Young, Fl. Texas, 280. Gard. Chroni- 2. 7. 172, f. **26.**

Melocactus viridescens. Teschemacher, Journ. Bost. Soc. Nat. Hist. 5. 293.

Whipplei. Engelm. & Bigel. Pac. R. Rep. 4. 28, t. **1.** Engelm. Syn. Cact. (15); Ives' Rep. 12; Trans. Acad. St. Louis, 2. 199; King's Rep. 5. 116; Bot. f. 1. 244. Walp. Ann. 5. 39. Brandegee, Fl. S. W. Col. 237.

r. **spinosior.** Engelm. in Simpson's Rep. 439.

Wislizeni. Engelm. in Wisliz. Rep. 12; Emory's Rep. 156, f. **4**; Syn. Cact. (18); Cact. Mex. Bound. 23 & 75, t. **25, 26**; Bot. Calif. 1. 246. Salm, Cact. t. Dyck. 151. Lab. Monogr. Cact. 200. Scheer, Seem. Bot. Herald, 290 & 346. low, Pac. R. Rep. 4. 12. Engelm. & Bigel., same, 4. 30, t. **3,** f. **1, 2.** Walp. 3. 894. Watson, Pl. Wheeler, 9.

E. Lecontei. Engelm. Pac. R. Rep. 4. 29, t. **2,** f. **3–5**; Syn. Cact. 274 (18); t. Mex. Bound. 23, t. **27**; Ives' Rep. 13. Torrey, Pac. R. Rep. 7. 11. Walp. 5. 40.

E. ancylacanthus; uncinatus.
Cachetianus; setispinus.
equitans; horizonthalonius.
flexispinus & *hamatocanthus*; longihamatus.
hamatus; setispinus.
laticostatus; horizonthalonius.
Lecontei; Wislizeni.
E. Lindheimeri; Texensis
Muhlenpfordtii; setisp
pectinatus & *pectinifer* tinatus.
Reichenbachii; Cereus
setispinus; longihama
Treculianus; sinuatus
viridescens; cylindrac

MAMILLARIA Arizonica. Engelm. in Watson, Pl. Wheeler 1. 244.

M. barbata. Engelm. in Wisliz. Rep. 21; Syn. Cact. 261 (5); Cac 64, t. 6, f. 9–12; Trans. Acad. St. Louis, 2. 201. Salm, Cact. H Lab. Monogr. Cact. 30. Walp. Ann. 3. 894 & 5. 34. (Chihuahua.)

M. bicolor. Lehmann, Del. Sem. Hamb. 1830 (Litt.-Ber. zu Li Pfeiffer, Enum. Cact. 27; Abbild. Cact. 1, t. 3. Walp. Rep. 2. 2 Dietr. 3. 90. Salm, Cact. Hort. Dyck. 89. Lab. Monogr. Cact. Allg. Gart. Zeit. 21. 94. Engelm. Syn. Cact. 263 (7); Trans. A 2. 202. (Mexico.)

M. nivea. Wendland, Cat. Hort. Herrn. 1835. Pfeiff. l. c. 27.
M. geminispina. Haworth, Phil. Mag. 63. 42.

M. calcarata. Engelm. in Gray, Pl. Lindh. 195; Syn. Cact. 267 (Bound. 14, t. 74, f. 1 (seed). Salm, Cact. Hort. Dyck. 131. Lab. 142. Walp. Ann. 5. 37.

M. sulcata. Engelm. Pl. Lindh. 246 (38), not Pfeiff. (Allg. Gar Torrey, Emory's Rep. 408.

M. strobiliformis. Muhlenpf. in Allg. Gart. Zeit. 16. 19 (Bot. Z Scheer. Scheele, Roem. Texas, 435.

M. compacta. Engelm. in Wisliz. Rep. 21; Gray, Pl. Lindh. 1 266 (10); Cact. Mex. Bound. t. 74, f. 2 (seed). Walp. Ann. 3. 894.

M. conoidea. DC. Rev. Cact. 112; Mém. Cact. 6, t. 2. Pfeiffer, Walp. Rep. 2. 291. Dietr. 3. 92 & 94. Salm, Cact. Hort. Dyck. Abbild. Cact. 2, t. 26. Lab. Monogr. Cact. 86. Engelm. Syn. (Mexico.)

M. inconspicua. Scheidw. Bull. Acad. Brux. 5. 495. Walp. Rep
M. diaphanacantha. Lemaire, Cact. Nov. 39.
M. echinocactoides. Pfeiffer, Allg. Gart. Zeit. 8. 281. Walp. Rep
M. strobiliformis. Engelm. in Wisliz. Rep. 29, not Scheer. Wal

M. dasyacantha. Engelm. Syn. Cact. 268 (12); Cact. Mex. B f. 17–22. Walp. Ann. 5. 37.

M. Echinus. Engelm. Syn. Cact. 267 (11); Cact. Mex. Bound. 13 Ann. 5. 37.

M. fasciculata. Engelm. in Emory's Rep. 156, f. 2.

M. Goodridgii. Scheer; Salm, Cact. Hort. Dyck. 91. Lab. M Scheer, Seem. Bot. Herald, 286. Engelm. in Am. Journ. Sci. 2. 14. 262 (6); Cact. Mex. Bound. 8, t. 8, f. 9–14; Bot. Calif. 1. 243. W

M. Grahami. Engelm. Syn. Cact. 262 (6); Cact. Mex. Bound. 7 & Pac. R. Rep. 4. 27; Ives' Rep. 12; King's Rep. 5. 115; Bot. Calif. Ann. 5. 34.

M. microcarpa. Engelm. in Emory's Rep. 156, f. 3.

M. gummifera. Engelm. in Wisliz. Rep. 21; Gray, Pl. Lindh. 199; Syn. Cact. 264 (8); Cact. Mex. Bound. 8, **t. 9, f. 18-20.** Walp. Ann. 2. 681.

M. Heyderi. Muhlenpf. in Allg. Gart. Zeit. 16. 20 (Bot. Zeit. 7. 598). Scheele, Roem. Texas, 435. Walp. Ann. 2. 680 & 5. 35. Engelm. Syn. Cact. 263 (7); Cact. Mex. Bound. 8, **t. 9, f. 4-14.**

M. applanata. Engelm. in Gray, Pl. Lindh. 198. Salm, Cact. Hort. Dyck. 109. Lab. Monogr. Cact. 84.

M. declivis. Dietr. Allg. Gart. Zeit. 18. 235. Walp. Ann. 2. 680.

M. Texensis. Labouret, Monogr. Cact. 89.

Var. **hemisphærica.** Engelm. Syn. Cact. l. c.; Cact. Mex. Bound. 8, **t. 9, f. 15-17.**

M. hemisphærica. Engelm. in Gray, Pl. Lindh. 198. Walp. l. c.

M. lasiacantha. Engelm. Syn. Cact. 261 (5); Cact. Mex. Bound. 5. & 73, **t. 3, 4.** Walp. Ann. 5. 33.

M. macromeris. Engelm. in Wisliz. Rep. 13; Syn. Cact. 270 (14); Cact. Mex. Bound. 10 & 74, **t. 14, 15.** Salm, Cact. Hort. Dyck. 133. Lab. Monogr. Cact. 145. Walp. Ann. 3. 893.

M. dactylithele. Labouret, l. c. 146.

M. meiacantha. Engelm. Pac. R. Rep. 4. 27; Syn. Cact. 263 (7); Cact. Mex. Bound. 9, **t. 9, f. 1-3.** Walp. Ann. 5. 35.

M. micromeris. Engelm. Syn. Cact. 260 (4); Cact. Mex. Bound. 3 & 73, **t. 1 & 2, f. 1-4.** Walp. Ann. 5. 33. Wood, Cl.-Book, 360.

Var. **Greggii.** Engelm. Syn. Cact. 261 (5). Walp. l. c.

M. Missouriensis. Sweet, Hort. Brit. 171. Don, Mill. 3. 160. Dietr. 3. 94.

Cactus mamillaris. Nutt. Genera, 1. 295, not Linn. James, Long's Exped. 2. 140. Torrey, Ann. Lyc. N. Y. 2. 202. Eat. & Wr. 163.

M. simplex. Torr. & Gray, Fl. 1. 553.

M. Nuttallii. Engelm. in Gray, Pl. Fendl. 49; Gray, Pl. Lindh. 199; Pl. Upp. Miss. 192; Syn. Cact. 260 (14); Cact. Mex. Bound. **t. 74, f. 6** (seed); King's Rep. 5. 116. Walp. Ann. 2. 680 & 5. 35.

Var. **cæspitosa.**

M. cæspitosa. Gray, Struct. Bot. 421, **f. 838.**

M. similis. Engelm. Pl. Lindh. 240 (38); Gray, Pl. Lindh. 200 (Allg. Gart. Zeit. 16. 18). Salm, Cact. Hort. Dyck. 106. Lab. Monogr. Cact. 79.

M. Nuttallii, var. *cæspitosa.* Engelm. Syn. Cact. 265 (9); Cact. Mex. Bound. 10, t. 74, f. 7 (seed). Walp. Ann. 5. 36. Porter, Fl. Col. 47.

Var. **robustior.**

M. similis, var. *robustior.* Engelm. in Gray, Pl. Lindh. 200. Salm, l. c.

M. Nuttallii, var. *robustior.* Engelm. & Bigel. Pac. R. Rep. 4. 28. Engelm. Syn. Cact. 265 (9). Walp. Ann. 5. 36.

M. pectinata. Engelm. Syn. Cact. 266 (10); Cact. Mex. Bound. 12 & 74, **t. 11.** Walp. Ann. 5. 36.

M. phellosperma. Engelm. Syn. Cact. 262 (6); Cact. Mex. Bound. 6, **t. 7**; Ives' Rep. 12; King's Rep. 5. 115; Bot. Calif. 1. 244. Engelm. & Bigel. Pac. R. Rep. 4. 27. Torrey, same, 5. 360. Walp. Ann. 5. 34.

M. tetrancistra. Engelm. in Am. Journ. Sci. 2. 14. 337, in part. Bigelow, Pac. R. Rep. 4. 15.

M. Pottsii. Scheer; Salm, Cact. Hort. Dyck. 104. Scheer, Seem. Bot. Herald, 287. Lab. Monogr. Cact. 72. Engelm. Syn. Cact. 268 (12). Walp. Ann. 5. 37.

M. pusilla. DC. Rev. Cact. 29, **t. 2, f. 1**; Prodr. 3. 459. Pfeiffer, Enu Salm, Cact. Hort. Dyck. 7. Lab. l. c. 25.

Cactus stellatus. Willd. Enum. Suppl. 30. Lodd. Bot. Cab. **t. 79.**

Cactus pusillus. DC. Cat. h. Monsp. 184.

M. stellaris. Haworth, Syn. Pl. Succ. Suppl. 72.

Var. **Texana.** Engelm. Syn. Cact. 261 (5); Cact. Mex. Bound. 5, **t. 5.** Ann. 5. 34.

M. Texana. Young, Fl. Texas, 279.

M. recurvata. Engelm. in Trans. Acad. St. Louis, 2. 202. (Sonora.)

M. recurvispina. Engelm. Syn. Cact. 266 (10); Cact. Mex. Bound. 12.

M. robustispina. Schott; Engelm. Syn. Cact. 265 (9); Cact. Mex. Bou **t. 74, f. 8** (seed). Walp. Ann. 5. 36.

M. Scheerii. Muhlenpf. in Allg. Gart. Zeit. 15. 97, **t. 2** (Bot. Zeit. 5. 49 13. 346 (Walp. Rep. 5. 810). Salm, Cact. Hort. Dyck. 133. Lab. Monogr. 147. Scheer, Seem. Bot. Herald, 289. Engelm. Cact. Mex. Bound. 11.

Var. (?) **valida.** Engelm. Syn. Cact. 265 (9); Cact. Mex. Bound. 10 & 74.

M. scolymoides. Scheidweil, Allg. Gart. Zeit. 9. 44. Walp. Rep. 2. 259. Cact. Hort. Dyck. 131. Lab. Monogr. Cact. 144. Engelm. Syn. Cact. 267 59); Cact. Mex. Bound. 14 & 74.

M. sphærica. Dietr. Allg. Gart. Zeit. 21. 94. Engelm. Syn. Cact. 264 (8); Mex. Bound. 9 & 74. Walp. Ann. 5. 35. Young, Fl. Texas, 279.

M. strobiliformis. Scheer; Salm, Cact. Hort. Dyck. 104, not Muhlenpf. S Seem. Bot. Herald, 287. Lab. Monogr. Cact. 73. Engelm. Cact. Mex. Boun

M. tuberculosa. Engelm. Syn. Cact. 268 (12); Cact. Mex. Bound. 14, **f. 1–16.** Walp. Ann. 5. 37.

M. vivipara. Haworth, Syn. Pl. Succ. Suppl. 72. DC. Prodr. 3. 459. Don 3. 160. Torr. & Gray, Fl. 1. 554. Walp. Rep. 2. 291; Ann. 5. 37. Leaven Am. Journ. Sci. 1. 49. 130. Engelm. in Gray, Pl. Fendl. 49; Gray, Pl. Lindh Pl. Upp. Miss. 192; Syn. Cact. 269 (13); Cact. Mex. Bound. 15, **t. 64, f. 3**; Acad. St. Louis, 2. 197; King's Rep. 5. 115; Hayd. Rep. 1871, 484; Simpson' 436. Salm, Cact. Hort. Dyck. 106. Lab. Monogr. Cact. 79. Dietr. 3. 92. Fl. Col. 48. Watson, Pl. Wheeler, 9.

Cactus viviparus. Nutt. in Fras. Cat.; Genera, 1. 295. Pursh, 735. Poir. 5. 587. Bradbury, Cat. 336. James, Cat. 181. Spreng. Syst. 2. 494. Ann. Lyc. N. Y. 2. 202. Eat. & Wr. 163.

M. Missouriensis. Scheer, Seem. Bot. Herald, 287.

Var. **radiosa.** Engelm. in Gray, Pl. Fendl. 49; Syn. Cact. l. c.; **Cact** Bound. 15, **t. 74, f. 4, 5** (seed). Engelm. & Bigel. Pac. R. Rep. 4. 28. Ann. 5. 38.

M. radiosa. Engelm. in Gray, Pl. Lindh. 196. Salm, Cact. **Hort. Dy** Lab. Monogr. Cact. 78.

M. Wrightii. Engelm. Pac. R. Rep. 4. 27; Syn. Cact. 262 (6); **Cact** Bound. 7 & 74, **t. 8, f. 1–8.** Walp. Ann. 5. 34.

M. aggregata; Cereus phœniceus.
applanata; Heyderi.
cæspitosa; Missouriensis.
dactylithele; macromeris.
M. declivis; Heyderi.
diaphanacantha & *echinocactoide* oidea.
fasciculata; **Cereus Fendleri.**

M. fissurata; Anhalonium fissuratum.
geminispina; bicolor.
hemisphærica; Heyderi.
inconspicua; conoidea.
microcarpa; Grahami.
Missouriensis; vivipara.
nivea; bicolor.
Nuttallii; Missouriensis.
papyracantha; Echinocactus papyracantha.
M. radiosa; vivipara.
recurvispina; recurvata.
similis & simplex; Missouriensis.
stellaris; pusilla.
strobiliformis; calcarata, conoidea.
sulcata; calcarata.
tetrancistra; phellosperma.
Texana; pusilla.
Texensis; Heyderi.
tuberculosa; strobiliformis.

OPUNTIA acanthocarpa. Engelm. & Bigel. Pac. R. Rep. 4. 51, **t. 18, f. 1-3,** & **t. 24, f. 11** (seeds). Engelm. Syn. Cact. 308 (52); King's Rep. 5. 120. Walp. Ann. 5. 56.

? *O. Californica.* Engelm. in Emory's Rep. 157, **f. 11.**

O. angustata. Engelm. & Bigel. l. c. 39, **t. 7, f. 3, 4,** & **t. 22, f. 11** (seed). Engelm. Syn. Cact. 292 (36); Fl. Calif. 248. Walp. Ann. 5. 50.

O. arborescens. Engelm. in Wisliz. Rep. 6; Emory's Rep. 157, **f. 10**; Gray, Pl. Fendl. 52, & Pl. Lindh. 208; Syn. Cact. 307 (51); Cact. Mex. Bound. 58 & 77, **t. 75, f. 16, 17** (seeds); Ives' Rep. 14; King's Rep. 120. Salm, Cact. Hort. Dyck. 250. Lab. Monogr. Cact. 492. Walp. Ann. 3. 896 & 5. 56. Thurber in Gray, Pl. Thurb. 300. Engelm. & Bigel. Pac. R. Rep. 4. 51, **t. 17, f. 5, 6, t. 18, f. 4,** & **t. 24, f. 12** (seeds). Porter, Fl. Col. 49. Watson, Pl. Wheeler, 9.

Cactus cylindricus. James, Cat. 182; Long's Exp. 2. 208. Eat. & Wr. 164.
Cactus Bleo. Torrey, Ann. Lyc. N. Y. 2. 202.
O. exuviata, var. *stellata.* Lemaire, Man. Cact. 1845.
O. exuviata. Scheele, Roem. Texas, 434.

O. arbuscula. Engelm. Syn. Cact. 309 (53); Cact. Mex. Bound. 60. Walp. Ann. 5. 57.

O. arenaria. Engelm. Syn. Cact. 301 (45); Cact. Mex. Bound. 52 & 57, **t. 75, f. 15** (seed). Walp. Ann. 5. 53.

O. basilaris. Engelm. & Bigel. Pac. R. Rep. 4. 43, **t. 13, f. 1-5,** & **t. 23, f. 14** (seed). Engelm. Syn. Cact. 298 (42); Cact. Mex. Bound. 52; Ives' Rep. 14; King's Rep. 5. 118; Bot. Calif. 249. Walp. Ann. 5. 52. Watson, Pl. Wheeler, 9.

O. Bigelovii. Engelm. in Pac. R. Rep. 4. 50, **t. 19, f. 1-7**; Syn. Cact. 307 (51); Bot. Calif. 1. 250. Walp. Ann. 5. 56. Watson, Pl. Wheeler, 9.

O. —— ? *n. sp.* Bigelow, Pac. R. Rep. 4. 13.

O. Camanchica. Engelm. & Bigel. Pac. R. Rep. 4. 40, **t. 9, f. 1-5,** & **t. 22, f. 12-15** (seed). Engelm. Syn. Cact. 291 (35). Walp. Ann. 5. 50. Porter, Fl. Col. 49.

O. chlorotica. Engelm. & Bigel. Pac. R. Rep. 4. 38, **t. 6, f. 1-3.** Engelm. Syn. Cact. 291 (35); Bot. Calif. 1. 248. Walp. Ann. 5. 49.

O. Tidballii. Bigelow, Pac. R. Rep. 4. 11.

O. clavata. Engelm. in Wisliz. Rep. 11; Gray, Pl. Fendl. 52; Syn. Cact. 302 (46). Salm, Cact. Hort. Dyck. 244. Lab. Monogr. Cact. 482. Walp. Ann. 3. 896. Engelm. & Bigel. Pac. R. Rep. 4. 48, **t. 22, f. 1-3,** & **t. 24, f. 6** (seed).

O. Davisii. Engelm. & Bigel. Pac. R. Rep. 4. 49, **t. 16.** Engelm. Syn. Cact. 305 (49). Walp. Ann. 5. 55.

O. echinocarpa. Engelm. & Bigel. l. c. **t. 18, f. 5–10,** & **t. 24, f. 8** (seeds). gelm. Syn. Cact. 305 (49); Ives' Rep. 14; Bot. Calif. 1. 250. Walp. Ann. 5. Parry, Am. Naturalist, 9. 20.

Var. **major.** Engelm. Syn. Cact. l. c.; Cact. Mex. Bound. 56.

O. Emoryi. Engelm. Syn. Cact. 303 (47); Cact. Mex. Bound. 53, **t. 70,** Bot. Calif. 1. 249. Walp. Ann. 5. 54.

O. Engelmanni. Salm, Cact. Hort. Dyck. 235. Engelm. in Gray, Pl. Li 207; Am. Journ. Sci. 2. 14. 338; Syn. Cact. 290 (34); Cact. Mex. Bound. 47, **t f. 1–4** (seeds); Bot. Calif. 1. 248. Scheer, Seem. Bot. Herald, 293. Walp. 2. 686 & 5. 49. Lab. Monogr. Cact. 460. Young, Fl. Texas, 278.

O. Lindheimeri. Engelm. in Gray, Pl. Lindh. 207. Walp. Ann. 2. 686.

? *O. dulcis.* Engelm. Cact. Mex. Bound. 48, **t. 75, f. 5–7** (seeds).

Var. **cyclodes.** Engelm. & Bigel. Pac. R. Rep. 4. 37, **t. 8, f. 1,** & **t. 22, f.** (seed). Engelm. Syn. Cact. 291 (35).

Var. **occidentalis.** Engelm. in Pac. R. Rep. 4, errata iii.; Syn. Cact. 290 (3 Bot. Calif. 1. 248.

O. occidentalis. Engelm. & Bigel. l. c. 4. 38, **t. 7, f. 1, 2,** & **t. 22, f. 10** (seed

Var. (?) **littoralis.** Engelm. in Bot. Calif. 1. 248.

O. Ficus-Indica, Mill. Torr. & Gray, Fl. 1. 555. Engelm. Syn. Cact. 290 (3 Bot. Calif. 1. 248. Chapman, 144. Wood, Bot. & Fl. 132.

O. filipendula. Engelm. Syn. Cact. 294 (38); Cact. Mex. Bound. 51, t. Walp. Ann. 5. 51.

O. fragilis. Haworth, Syn. Pl. Succ. Suppl. 82. DC. Prodr. 3. 472. Don, M 3. 172. Pfeiffer, Allg. Gart. Zeit. 6. 276; Enum. Cact. 147. Torr. & Gray, Fl. 1. 5 Dietr. 3. 112. Spach, Hist. Veg. 13. 398. Walp. Rep. 2. 354. Salm, Cact. Hc Dyck. 243. Lab. Monogr. Cact. 481. Trecul, Bull. Bot. Soc. France, 1. 306. gelm. Pl. Upp. Miss. 192; Syn. Cact. 301 (45); Trans. Acad. St. Louis, 2. 2 King's Rep. 5. 119; Simpson's Rep. 442. Engelm. & Bigel. Pac. R. Rep. 4. **t. 24, f. 5** (seed). Walp. Ann. 5. 54.

Cactus fragilis. Nutt. Genera, 1. 296. James, Long's Exped. 2. 138. Spre Syst. 2. 497. Torrey, Ann. Lyc. N. Y. 2. 202. Eat. & Wr. 103.

? *O. brachyarthra.* Engelm. & Bigel. Pac. R. Rep. 4. 47, **t. 12, f. 9.** Engel Syn. Cact. 302 (46). Walp. Ann. 5. 54.

O. fulgida. Engelm. Syn. Cact. 306 (50); Cact. Mex. Bound. 57, **t. 75,** f. (seed); Bot. Calif. 1. 250 (as *O. fulgens*). Walp. Ann. 5. 56.

O. fusco-atra. Engelm. Pac. R. Rep. 4, **t. 11, f. 4**; Syn. Cact. 297 (41). W Ann. 5. 52.

O. Grahami. Engelm. Syn. Cact. 304 (48); Cact. Mex. Bound. 55, **t. 72.** W Ann. 5. 55.

O. hystricina. Engelm. & Bigel. Pac. R. Rep. 4. 44, **t. 15, f. 5–7,** & **t. 23,** f. (seed); Syn. Cact. 299 (43); Ives' Rep. 14; Trans. Acad. St. Louis, 2. 200; Kin Rep. 5. 119; Simpson's Rep. 441. Walp. Ann. 5. 53.

O. Kleiniæ. DC. Rev. Cact. 118. Pfeiff. Enum. Cact. 171. Salm. Cact. H Dyck. 250. Walp. Rep. 2. 353. Engelm. Cact. Mex. Bound. 77.

O. Wrightii. Engelm. Syn. Cact. 308 (52); Cact. Mex. Bound. 59 & 77. W Ann. 5. 57.

O. leptocaulis. DC. Rev. Cact. 118. Pfeiffer, Enum. Cact. 173. Walp. I 2. 353. Salm, Cact. Hort. Dyck. 250. Lab. Monogr. Cact. 493. Scheer, Se Bot. Herald, 293. Engelm. in Bot. Calif. 1. 250.

O. fragilis, var. *frutescens*. Engelm. Pl. Lindh. 245 (37).

O. frutescens. Engelm. in Wisliz. Rep. 28; Gray, Pl. Lindh. 208; Syn. Cact. 309 (53); Cact. Mex. Bound. 60 & 77; King's Rep. 5. 120. Scheele, Roem. Texas, 434. Salm, Cact. Hort. Dyck. 251. Lab. Monogr. Cact. 494. Scheer, Seem. Bot. Herald, 293. Torr. & Gray, Pac. R. Rep. 2. 165. Engelm. & Bigel. Pac. R. Rep. 4. 53, t. 20, f. 2, 3, & t. 24, f. 16–18 (seed). Walp. Ann. 5. 57. Gray, Hall's Pl. Texas, 9.

Var. **brevispina.**

? *O. gracilis*. Mart. Hort. Monac.; Pfeiffer, Enum. Cact. 172. Walp. l. c. Salm, Cact. Hort. Dyck. 251.

? *O. virgata*. Hort. Vindob.

O. frutescens, var. *brevispina*. Engelm. Pac. R. Rep. 4. 56, t. 20, f. 4, 5, & t. 24, f. 19 (seed); Syn. Cact. 309 (53). Walp. Ann. 5. 57.

Var. **vaginata.**

O. vaginata. Engelm. in Wisliz. Rep. 16; Emory's Rep. 158, f. 12; Syn. Cact. 309 (53). Walp. Ann. 3. 897 & 5. 57. Engelm. & Bigel. Pac. R. Rep. 4. 52, t. 20, f. 1, & t. 24, f. 13–15 (seeds).

O. **macrocentra.** Engelm. Syn. Cact. 292 (36); Cact. Mex. Bound. 49, t. 75, f. 8 (seed). Walp. Ann. 5. 50.

O. **mamillata.** Schott; Engelm. Syn. Cact. 308 (52); Cact. Mex. Bound. 58, t. 75, f. 19 (seed); Bot. Calif. 1. 250. Walp. Ann. 5. 57.

O. **microdasys.** Lehm. Ind. Sem. Hamb. 1827, 16; Act. Acad. Leop. 16. 317 (Pug. Pl. 1. 11 & 2. 5). Pfeiffer, Enum. Cact. 154. Walp. Rep. 2. 348. Salm, Cact. Hort. Dyck. 241. Lab. Monogr. Cact. 471. Engelm. Syn. Cact. 298 (42). (North-eastern Mexico.)

O. pulvinata. DC. Rev. Cact. 119.

O. **Missouriensis.** DC. Prodr. 3. 472. Salm, Hort. Dyck. 363; Cact. Hort. Dyck. 67. Don, Mill. 3 172. Torr. & Gray, Fl. 1. 555, in part. Pfeiffer, Enum. Cact. 158. Walp. Rep. 2. 349; Ann. 5. 53. Dietr. 3. 114. Torrey, Frem. Rep. 99; Emory's Rep. 403. Spach, Hist. Veg. 13. 405. Engelm. Pl. Lindh. 38; Pl. Upp. Miss. 192; Syn. Cact. 299 (43); King's Rep. 5. 118; Hayd. Rep. 1871, 483; Simpson's Rep. 442. Lab. Monogr. Cact. 461. Engelm. & Bigel. Pac. R. Rep. 4. 44, t. 14, f. 1–3, & t. 23, f. 16 (seed). Gray, Pac. R. Rep. 12. 43; Proc. Acad. Philad. 1863, 61; Manual, 185. Pl. Bourgeau, 256. Porter, Fl. Col. 49. Helmsley, Garden, 11. 275.

Cactus ferox. Nutt. Genera, 1. 296, not Willd. James, Long's Exped. 2. 140 & 58. Torrey, Ann. Lyc. N. Y. 2. 202. Eat. & Wr. 163.

O. polyacantha. Haworth, Syn. Pl. Succ. Suppl. 82.

O. media. Haworth, Syn. Pl. Succ. Suppl. 82; fide Salm, Hort. Dyck. 363. Pfeiffer, Enum. Cact. 158. Dietr. 3. 114. Walp. Rep. 2. 350.

? *O. splendens*. Hort. Angl.; Pfeiffer, l. c. 159.

O. Missouriensis, var. *elongata*. Salm, Cact. Hort. Dyck. 67.

Var. **platycarpa.** Engelm. Pac. R. Rep. 4. 46, t. 14, f. 4, & t. 23, f. 17 (seed); Syn. Cact. 300 (44). Walp. l. c.

Var. **microsperma.** Engelm. ll. cc., t. 14, f. 5–7, & t. 24, f. 1, 2 (seeds). Walp. l. c.

Var. **albispina.** Engelm. ll. cc. t. 14, f. 8–10, & t. 23, f. 18 (seed); Simpson's Rep. 442. Walp. Ann. 5. 53.

Var. **trichophora.** Engelm. l. c. t. 15, f. 1–4, & t. 23, f. 19 (seed); Syn. Cact. 44. Walp. l. c.

O. Mohavensis. Engelm. & Bigel. Pac. R. Rep. 4. 40, **t. 9, f. 6–8**; Syn. Cact. 293 (37); Bot. Calif. 1. 248. Walp. Ann. 5. 50.

O. Parryi. Engelm. in Am. Journ. Sci. 2. 14. 339; Syn. Cact. 303 (47); Cact. Mex. Bound. 53; Bot. Calif. 1. 249. Engelm. & Bigel. l. c. 48, **t. 22, f. 4–7**, & **t. 24, f. 7** (seed). Walp. Ann. 5. 54.

O. Pes-Corvi. LeConte; Chapman, 145. Engelm. in Proc. Am. Acad. 3. 346; Trans. Acad. St. Louis, 2. 204; Simpson's Rep. 442. Wood, Bot. & Fl. 132.

O. phæacantha. Engelm. in Gray, Pl. Fendl. 51; Syn. Cact. 292 (36); Cact. Mex. Bound. 49, **t. 75, f. 9–13** (seed). Walp. Ann. 2. 686 & 5. 50.

Var. **major.** Engelm. & Bigel. Pac. R. Rep. 4. 40. Engelm. Syn. Cact. 273 (37).

O. polyantha. Haworth, Syn. Pl. Succ. 190. DC. Prodr. 3. 472. Pfeiff. Enum. 163. Walp. Rep. 2. 351. Chapman, 145. Wood, Bot. & Fl. 132.

Cactus polyanthus. Sims, Bot. Mag. **t. 2691.** DC. Pl. Grass. **t. 138.**

O. procumbens. Engelm. & Bigel. Pac. R. Rep. 4. 39, **t. 6, f. 4, 5.** Engelm. Syn. Cact. 292 (36). Walp. Ann. 5. 49.

O. prolifera. Engelm. in Am. Journ. Sci. 2. 14. 338; Syn. Cact. 306 (50); Cact. Mex. Bound. 56; Bot. Calif. 250. Walp. Ann. 5. 56.

O. pulchella. Engelm. in Trans. Acad. St. Louis, 2. 201; King's Rep. 5. 119; Bot. Calif. 1. 249; Simpson's Rep. 443, **t. 3.**

O. Rafinesquii. Engelm. Pac. R. Rep. 4. 41, **t. 10, f. 3–5, & t. 22, f. 7, 8** (seeds); Syn. Cact. 295 (39); Torrey Bot. Bull. 2. 34. Walp. Ann. 5. 51. Lemaire, Ill. Hort. 15, Misc. 49, **fig.** Haage & Schmidt, Rev. Hort. 1868, 90, **f. 10, 11.** Gray, Manual, 185. Porter, Fl. Col. 49. Peck, Torrey Bot. Bull. 2. 37. Helmsley, Garden, 11. 274.

Cactus Opuntia. Torrey, Fl. U. S. 466, in part. Audubon, Birds, **t. 69.** Bigel. Fl. Bost. 3 ed. 203.

O. mesacantha & *cæspitosa.* Raf. in Seringe, Bull. Bot. Gen. 1830, 216 (Litt.-Ber. zu Linnæa, 1833, 81); Fl. Med. 2. 247. Pfeiffer, Enum. Cact. 146. Walp. Rep. 2. 346.

O. vulgaris. Beck, Bot. 135, in part. Torr. & Gray, Fl. 1. 555, in part. Torrey, Fl. N. Y. 1. 245. Emerson, Trees of Mass. 424. Parry, Pl. Minn. 612.

O. vulgaris, var. (?) *Rafinesquii.* Gray, Manual, 2 ed. 136.

Var. **microsperma.** Engelm. in Pac. R. Rep. 4. 41; Syn. Cact. 295 (39).

Var. **minor.** Engelm. in Pac. R. Rep. 4. 41, **t. 11, f. 1.**

Var. (?) **grandiflora.** Engelm. l. c. **t. 11, f. 2, 3**; Syn. Cact. l. c.

O. sp. Engelm. Pl. Lindh. 246 (38).

O. intermedia. Engelm. in Gray, Pl. Lindh. 206.

Var. (?) **cymochila.** Engelm. & Bigel. l. c. 42, **t. 12, f. 1–3, & t. 23, f. 10–12** (seed). Engelm. Syn. Cact. l. c.

Var. (?) **stenochila.** Engelm. & Bigel. l. c. 43, **t. 12, f. 4–6, & t. 23, f. 9** (seed). Engelm. Syn. Cact. 296 (40).

Var. (?) **macrorhiza.** Engelm. Syn. Cact. 296 (40).

O. macrorhiza. Engelm. in Gray, Pl. Lindh. 206; Cact. Mex. Bound. 51, **t. 69.** Salm, Cact. Hort. Dyck. 243. Lab. Monogr. Cact. 477. Young, Fl. Texas, 278.

Var. (?) **fusiformis.** Engelm. & Bigel. Pac. R. Rep. 4. 43, **t. 12, f. 7, 8, & t. 23, f. 6** (seed). Engelm. Pl. Upp. Miss. 192; Syn. Cact. 297 (41).

O. rufida. Engelm. Syn. Cact. 298 (42); Cact. Mex. Bound. 51. Walp. Ann. 5. 52.

.tila. Nutt.; Torr. & Gray, Fl. 1. 555. Dietr. 3. 116. Gray, Proc. Acad. l. 1863, 61. Engelm. in King's Rep. 5. 119; Bot. Calif. 1. 248.

erinacea. Engelm. & Bigel. Pac. R. Rep. 4. 47, **t. 13, f. 8–11,** & **t. 24, f. 4** . Engelm. Syn. Cact. 301 (45); King's Rep. 5. 119. Walp. Rep. 5. 53.

:hottii. Engelm. Syn. Cact. 304 (48); Cact. Mex. Bound. 54, **t. 73, f. 1–4.** . Ann. 5. 54.

rpentina. Engelm. in Am. Journ. Sci. 2. 14. 338; Syn. Cact. 306 (50); Mex. Bound. 56; Bot. Calif. 1. 250. Engelm. & Bigel. Pac. R. Rep. 4. 50. . Ann. 5. 55.

Cereus (?) *Californicus.* Torr. & Gray, Fl. 1. 555. Engelm. in Am. Journ. . 14. 338.

tispina. Engelm.; Salm, Cact. Hort. Dyck. 239. Lab. Monogr. Cact. 466. m. Syn. Cact. 294 (38). Walp. Ann. 5. 51. (Chihuahua.)

hærocarpa. Engelm. & Bigel. Pac. R. Rep. 4. 47, **t. 13, f. 6–7,** & **t. 24, f. 3** . Engelm. Syn. Cact. 300 (44). Walp. Ann. 5. 53.

(?) **Utahensis.** Engelm. in Hayd. Rep. 1871, 483.

enopetala. Engelm. Syn. Cact. 289 (33); Cact. Mex. Bound. 46 & 76, **t. 66.** . Ann. 5. 48. Young, Fl. Texas, 278. (Northern Mexico.)

trigil. Engelm. Syn. Cact. 290 (34); Cact. Mex. Bound. 47, **t. 67.** Walp. 5. 48. Young, Fl. Texas, 278.

nuispina. Engelm. Syn. Cact. 294 (38); Cact. Mex. Bound. 50, **t. 75, f. 14**). Walp. Ann. 5. 50 (as *O. minor*).

ssellata. Engelm. Pac. R. Rep. 4. 52, **t. 21,** & **t. 24, f. 20** (seed); Syn. Cact. 3); Cact. Mex. Bound. 60; Bot. Calif. 1. 249. Torrey, Pac. R. Rep. 5. 360. . Ann. 5. 57. Watson, Pl. Wheeler, 9.

. ramosissima. Engelm. in Am. Journ. Sci. 2. 14. 339.

hurberi. Engelm. Syn. Cact. 308 (52); Cact. Mex. Bound. 59. Walp. Ann. (Sonora.)

ırtispina. Engelm. & Bigel. Pac. R. Rep. 4. 41, **t. 8, f. 2, 3,** & **t. 23, f. 1–5** s). Engelm. Syn. Cact. 293 (37); Simpson's Rep. 441. Walp. Ann. 5. 50.

CNA, Mill. Engelm. in Wisliz. Rep. 16; Am. Journ. Sci. 2. 14. 338; Syn. Cact. 4); Bot. Calif. 1. 248. Thurber in Gray, Pl. Thurb. 302. Bigelow, Pac. R. 4. 16.

. Bonplandii. HBK. Nov. Gen. 6. 69.

unicata. Otto; Pfeiffer, Enum. Cact. 170. Salm, Cact. Hort. Dyck. 249. . Rep. 2. 352. (Northern Mexico.)

. exuviata. DC. Rev. Cact. 118, excl. vars. Pfeiffer, l. c. Walp. l. c.

. bulbispina. Engelm. Syn. Cact. 304 (48); Cact. Mex. Bound. 55, **t. 73,**). Walp. Ann. 5. 55.

ulgaris. Haworth, Syn. Pl. Succ. 190. Salm, Obs. Bot. 9. DC. Prodr. . Don, Mill. 3. 175. Beck, Bot. 135, in part. Torr. & Gray, Fl. 1. 555, rt. Dietr. 3. 112. Pfeiffer, Enum. Cact. 149. Walp. Rep. 2. 347. Loud. 2. 967, **f. 2474.** Engelm. Syn. Cact. 297 (41); Torrey, Bot. Bull. 2. 34. le, Roem. Texas, 435. Lab. Monogr. Cact. 477. Engelm. & Bigel. Pac. R. 4. 41, **t. 5, f. 2, 3,** & **t. 23, f. 1–5** (seeds). Walp. Ann. 5. 52. Chapman, 144. Manual, 185. Helmsley, Garden, 11. 274.

ictus Opuntia. Linn. Spec. 468, in part. Walter, 146. Bartram, Trav. 163. l. Spec. 2. 943. Michx. Fl. 1. 282. Persoon, 2. 22. Pursh, 327. Nutt. Gen.

1. 290. DC. Pl. Grass. t. **138**. Sims, Bot. Mag. t. **2393**. Torrey, Fl. U. S. 466, in part. Spreng. Syst. 2. 497. Eat. & Wr. 163.

Opuntia Italica. Tenore.

Cactus humifusus. Raf. Ann. Nat. 1820, 15.

O. maritima & humifusa. Raf. Fl. Med. 2. 247.

O. intermedia. Salm, Hort. Dyck. 364; Cact. Hort. Dyck. 243. Pfeiffer, Enum. Cact. 150. Walp. Rep. 2. 347. Lab. Monogr. Cact. 476.

O. Whipplei. Engelm. & Bigel. Pac. R. Rep. 4. 50, t. **17, f. 1–4, & t. 24, f. 9, 10** (seeds). Engelm. Syn. Cact. 307 (51). Walp. Ann. 5. 56.

Var. **spinosior**. Engelm. & Bigel. l. c. Engelm. Syn. Cact. l. c.; Cact. Mex. Bound. 57.

O. —— ? Brandegee, Fl. S. W. Col. 237.

O. Bonplandii; Tuna.
bulbispina; tunicata.
cæspitosa; Rafinesquii.
Californica; acanthocarpa.
dulcis; Engelmanni.
erinacea; rutila.
exuviata; arborescens, tunicata.
fragilis, frutescens & gracilis; leptocaulis.
humifusa; vulgaris.
intermedia; Rafinesquii, vulgaris.
Italica; vulgaris.
Lindheimeri; Engelmanni.
O. macrorhiza & mesacantha; Rafinesquii.
maritima; vulgaris.
media; Missouriensis.
occidentalis; Engelmanni.
polyacantha; Missouriensis.
pulvinata; microdasys.
ramosissima; tessellata.
splendens; Missouriensis.
Tidballii; chlorotica.
vaginata & virgata; leptocaulis.
vulgaris; Rafinesquii.
Wrightii; Kleiniæ.
——?; Bigelovii, Rafinesquii.

FICOIDEÆ.

MESEMBRYANTHEMUM CRYSTALLINUM, Linn. Torrey, Bot. Wilkes, 302. Brew. & Wats. Bot. Calif. 1. 251.

M. ÆQUILATERALE, Haworth. Brew. & Wats. l. c.

M. dimidiatum. Torrey, Pac. R. Rep. 4. 75. Newberry, same, 6. 67. Bolander, Cat. 8.

M. mutabile, Haw.? Torrey, Bot. Wilkes, 302.

MOLLUGO verticillata. Linn. Spec. 89. See syn. in Fenzl, Ann. Wien. Mus. 1. 378; Rohrbach, Mart. Fl. Bras. 14². 240. — Hill, Veg. Syst. 14, t. **15, f. 5**. Walter, 83. Ait. Hort. Kew. 1. 124. Gaertn. Fruct. t. **130**. Lam. Dict. 4. 286. Willd. Spec. 1. 492. Michx. Fl. 1. 77. Persoon, 1. 112. Pursh, 92. Bigel. Fl. Bost. 48. Elliott, 1. 183. Roem. & Schult. Syst. 2 871. Seringe, DC. Prodr. 1. 391. Torrey, Fl. U. S. 160; Fl. N. Y. 1. 104; Bot. Wilkes, 247. Beck, Bot. 50; Am. Journ. Sci. 10. 262. Cham. & Schlecht. in Linnæa, 1. 45. Hook. Fl. Bor.-Am. 1. 92; Lond. Journ. Bot. 1. 196. Torr. & Gray, Fl. 1. 176. Eat. & Wr. 321. Gray, Gen. Ill. 2. 14, t. **101**; Pl. Wright. 2. 19; Manual, 96; Proc. Am. Acad. 8. 378. Griseb. Fl. Brit. W. Ind. 56. Newberry, Pac. R. Rep. 6. 67. Chapman, 48. Baillon, Adansonia, 5. 381, t. **9**. Rohrbach, l. c. t. **55, f. 2**. Brew. & Wats. Bot. Calif. 1. 252.

Pharnaceum Cerviana. Walter, 117.

Var. **scrobiculata**. Rohrbach, l. c. 242.

M. arenaria. HBK. Nov. Gen. & Spec. 6. 17. Walp. Rep. 2. 241. Seem. Bot. Herald, 270.

SESUVIUM pentandrum. Elliott, 1. 556. Fenzl, l. c. 2. 347. Eat. & Wr. 424. Gray, Gen. Ill. 1. 230, t. **100**; Pl. Wright. 1. 13; Torr. Bot. Bull. 2. 48. Chapman, 44. Smith, Proc. Acad. Philad. 1867, 18. Merriam, Torr. Bot. Bull. 2. 41. Referred to *S. Portulacastrum* by Rohrbach, l. c. 312.

Pharnaceum maritimum. Walter, 117. Roem. & Schult. 6. 692. Dietr. 2. 1014.

Mollugo maritima. Seringe, DC. Prodr. 1. 393. Don, Mill. 1. 422.

S. sessile. Nutt. Genera, 1. 306. Torrey, Fl. U. S. 478. Eat. & Wr. 424.

S. Portulacastrum. Muhl. Cat. 50. Beck, Bot. 134, in part. Gray, Manual, 97.

S. Portulacastrum. Linn. Spec. 2 ed. 684. See syn. in DC. Prodr. 3. 453; Rohrbach, Mart. Fl. Bras. 14^2. 310. — Beck, Bot. 134, in part. Hook. Comp. Bot. Mag. 1. 46. Griseb. Fl. Brit. W. Ind. 57. Torrey, Pac. R. Rep. 5. 359. Gray, Ives' Rep. 8. Chapman, 44. Smith, Proc. Acad. Philad. 1867, 18. Rohrbach, l. c. t. 70. Brew. & Wats. Bot. Calif. 1. 251.

Portulaca Portulacastrum. Linn. Spec. 446.

? *Polycarpon uniflorum*. Walter, 83 (Torrey, Fl. U. S. 159).

S. pedunculatum. Persoon, 2. 39. Lam. Ill. t. **434, f. 1**. Elliott, 1. 555. Nutt. in Am. Journ. Sci. 5. 295. Eat. & Wr. 424.

Var. **subsessile**. Gray, Pl. Wright. 1. 13 & 2. 19.

S. sessile. Persoon, 2. 39.

S. Portulacastrum. DC. Pl. Grass. t. 9. Torrey, Emory's Rep. 137; Mex. Bound. 38.

TRIANTHEMA monogynum. Linn. Mant. 69. See syn. in Willd. Spec. 2. 635. [Lam. Ill. t. **375**.] — Gray, Pl. Wright. 1. 15 & 2. 20; Proc. Am. Acad. 5. 154. Griseb. Fl. Brit. W. Ind. 58. Torrey, Mex. Bound. 37.

UMBELLIFERÆ.

ÆGOPODIUM PODAGRARIA, Linn. Darling. Fl. Cestr. 2 ed. 105.

ÆTHUSA CYNAPIUM, Linn. Bigel. Fl. Bost. 2 ed. 113. Beck, Bot. 145. Torr. & Gray, Fl. 1. 618. Eat. & Wr. 116. Torrey, Fl. N. Y. 1. 274. Gray, Manual, 103.

AMMI MAJUS, Linn. DC. Prodr. 4. 112. Hook. Fl. Bor.-Am. 1. 261. Don, Mill. 3. 286. Torr. & Gray, Fl. 1. 606. Dietr. 2. 944. (Doubtful. Newfoundland; not recent.)

Sison majus. Eat. & Wr. 429.

ANGELICA arguta. Nutt.; Torr. & Gray, Fl. 1. 620. Walp. Rep. 2. 406. Torrey, Bot. Wilkes, 323.

A. Breweri. Gray, Proc. Am. Acad. 8. 348. Anderson, Cat. Pl. Nev. 121. Watson, King's Rep. 5. 126. Coulter, Hayd. Rep. 1872, 768. Brew. & Wats. Bot. Calif. 1. 265.

Archangelica hirsuta. Durand, Pl. Pratten. 89.

A. Curtisii. Buckley, Am. Journ. Sci. 1. 45. 173. Chapman, 164. Gray, Manual, 102.

A. genuflexa. Nutt.; Torr. & Gray, Fl. 1. 620. Walp. Rep. 2. 406. Gray, Proc. Am. Acad. 8. 385. Torrey, Bot. Wilkes, 322.

A. leporina. Watson, Proc. Am. Acad. 12. 252.

A. linearifloba. Gray, l. c. 7. 347. Brew. & Wats. Bot. Calif. 1. 266.

A. lucida. Linn. Spec. 251. Hill, Veg. Syst. 6. 14, t. **12**, f. **2**. Crantz, Umbel. 65. Jacquin, Hort. Vindob. 3. 16, t. **24**. Lam. Dict. 1. 173. Ait. Hort. Kew. 1. 349. Willd. Spec. 1. 1430. Persoon, 1. 316. Spreng. Umbel. 63; Roem. & Schult. Syst. 6. 604; Syst. 1. 916. Torrey, Fl. U. S. 316. DC. Prodr. 4. 168. Hook. Fl. Bor.-Am. 1. 267. Beck, Bot. 147. Don, Mill. 3. 323. Torr. & Gray, Fl. 1. 620. Eat. & Wr. 127. Dietr. 2. 962. (A very obscure species; from Canada.)

A. pinnata. Watson, King's Rep. 5. 126.

A. tomentosa. Watson, Proc. Am. Acad. 11. 141. Brew. & Wats. l. c. 265.

A. verticillata. Hook. in Lond. Journ. Bot. 6. 233. Walp. Ann. 1. 350.

A. Wheeleri. Watson, Am. Naturalist, 7. 301; Pl. Wheeler, 9.

APIASTRUM angustifolium. Nutt.; Torr. & Gray, Fl. 1. 644. Walp. Rep. 2. 428. Torrey, Pac. R. Rep. 4. 94; Mex. Bound, 71, t. **28**. Boland. Cat. Brew. & Wats. Bot. Calif. 1. 259.

Discopleura capillacea. Hook. & Arn. Bot. Beechey, 142.

? *Leptocaulis inermis.* Hook. & Arn. Bot. Beechey, 347.

Helosciadium leptophyllum, var. (?) *latifolium.* Hook. & Arn. l. c. Torr. & Gray Fl. 1. 607.

A. latifolium. Nutt.; Torr. & Gray, Fl. 1. 644. Walp. l. c.

APIUM divaricatum. Benth. & Hook. Gen. Pl 1. 888 (referring the genus *Leptocaulis* to *Apium*). Wood, Bot. & Fl. 140.

Daucus divaricatus. Walter, 114. Gmelin, Syst. 474.

Sison pusillum. Michx. Fl. 1. 168. Pursh, 194. Elliott, 1. 356.

Ammi divaricatum. Persoon, 1. 308. Poir. Suppl. 1. 310. Muhl. Cat. 30.

Ligusticum pusillum. Persoon, 1. 315. Spreng. in Roem & Schult. Syst. 6. 555.

Sium pusillum. Poir. Suppl. 1. 622.

Æthusa divaricata. Spreng. Prodr. Umbel. 22. Nutt. Genera, 1. 187 & 200. Eat. & Wr. 116.

Sison divaricatus. Spreng. Spec. Umbel. 113; Roem. & Schult. Syst. 6. 411; Syst. 1. 887.

Leptocaulis divaricatus. DC. Mem. Umbel. 30, t. **10**, f. **A**; Prodr. 4. 107. Don, Mill. 3. 284. Torr. & Gray, Fl. 1. 608. Dietr. 2. 942. Eat. & Wr. 297. Chapman, 161. Wood, Cl.-Book, 387. A. H. Smith, Proc. Acad. Philad. 1867, 19. Gray, Hall's Pl. Texas, 11.

Leptocaulis diffusus. Nutt.; DC. Prodr. 4. 107. Don, Mill. 3. 284. Torr. & Gray, Fl. 1. 608. Dietr. 2. 942. Eat. & Wr. 297. Young, Fl. Texas, 298.

Spermolepis divaricata. Raf. in Bull. Bot. Genev. 1830, 214 (Litt.-Ber. zu Linnæa, 1833, 82).

Babiron divaricatum & dichotomum. Raf. New Flora, 4. 24.

A. echinatum. Benth. & Hook. l. c.

Leptocaulis echinatus. Nutt.; DC. Prodr. 4. 107. Don, Mill. 3. 284. Torr. & Gray, Fl. 1. 609. Dietr. 2. 944. Eat. & Wr. 297. Engelm. & Gray, Pl. Lindh. 10. Torrey, Marcy's Rep. 286; Mex. Bound. 70. Gray, Pl. Wright. 2. 65; Hall's Pl. Texas, 11. Young, Fl. Texas, 298.

A. GRAVEOLENS, Linn. Hook. & Arn. Bot. Beechey, 142. Nutt. Pl. Gambel. in Journ. Acad. Philad. 1. 183. Torrey, Pac. R. Rep. 4. 91. Benth. & Hook. Gen. Pl. 1. 888. Brew. & Wats. Bot. Calif. 1. 258.

A. leptophyllum. F. Muel.; Benth. Fl. Austral. 3. 372. See syn. in DC. Rapp. Pl. Rar. Jard. Gen. 3. 7, & Prodr. 4. 105 (under *Helosciadium*). — Benth. & Hook. l. c. Wood, Bot. & Fl. 140.

n *Ammi.* Linn. Spec. 252? Jacquin, Hort. Vindob. 2. 95, t. **200.**
usa leptophylla. Spreng. Prodr. Umbel. 22. Nutt. Genera, 1. 190. Eat. &
).
sciadium leptophyllum. DC. Prodr. 4. 105. Hook. Comp. Bot. Mag. 1. 47. Gray, Fl. 1. 607. Dietr. 2. 943. Eat. & Wr. 257. Darby, Bot. 331. Gri- Brit. W. Ind. 308. Wood, Cl.-Book, 386. Reichenb. f. Icon. Fl. Germ. **1850, f. 1–8.** Gray, Hall's Pl. Texas, 11.

IFLORUM, Benth. & Hook. Wood, Bot. & Fl. 140. (To be excluded; seen Walter.)
ı *nodiflorum*, Linn. Walter, 115. Elliott, 1. 355.
sciadium nodiflorum, Koch. Torr. & Gray, Fl. 1. 606. Eat. & Wr. 266. ın, 162. Wood, Cl.-Book, 386.

ens.
caulis patens. Nutt.; DC. Prodr. 4. 107. Don, Mill. 3. 284. Torr. & Gray, 9. Dietr. 2. 984. Eat. & Wr. 297. Gray, Pl. Wright. 2. 65; Hall's Pl. 11. Engelm. Pl. Upp. Miss. 193. Young, Fl. Texas, 298.
otocaulis inermis. Nutt.; DC. Mem. Umbel. 39, t. **10, f. B**; Prodr. 4. 107. ll. 3. 283. Torr. & Gray, Fl. 1. 608. Dietr. 2. 944. Eat. & Wr. 297.

ei. Gray, Proc. Am. Acad. 7. 343; Hall's Pl. Texas, 11.
oselinum Popei. Torr. & Gray, Pac. R. Rep. 2. 165. Benth. & Hook. Gen. 09.

ANGELICA atropurpurea. Hoffman, Umbel. 161, & 2 ed. 169. Don, 324. Torr. & Gray, Fl. 1. 621. Torrey, Fl. N. Y. 1. 276. Darling. Fl. ed. 101. Gray, Am. Journ. Sci. 2. 33. 408; Manual, 193. — The genus is re-) *Angelica* by Maximowicz, Bull. Acad. Petersb. 19. 273 (Mel. Biol. 9. 250).
lica atropurpurea. Linn. Spec. 251. Hill, Veg. Syst. 6. 14, t. **12, f. 1.** Umbel. 65. Lam. Dict. 1. 173. Ait. Hort. Kew. 1. 349. Willd. Spec. Enum. 313. Persoon, 1. 315. Pursh, 193. Spreng. in Roem. & Schult. 603; Syst. 1. 915. Torrey, Fl. U. S. 316. DC. Prodr. 4. 168. Hook. Fl. ı. 1. 267. Beck, Bot. 147. Darling. Fl. Cestr. 193. Dietr. 2. 962. Eat. &
.
lica triquinata. Michx. Fl. 1. 167. Persoon, 1. 316. Pursh, 193. Bigel. Fl. . Barton, Comp. Fl. Phil. 1. 140.
ratoria lucida. Nutt. Genera, 1. 181.

tata. Chapman; Torr. & Gray, Fl. 1. 622. Walp. Rep. 2. 407. Chapman, ood, Cl.-Book, 381; Bot. & Fl. 137.

elini. DC. Prodr. 4. 170. See syn. in Ledeb. Fl. Ross. 2. 361 (as *Cœlopleu-* look. f. Arct. Pl. 292 & 300, referring it to *A. officinalis.* — Hook. Fl. Bor.- 67. Don, Mill. 3. 324. Torr. & Gray, Fl. 1. 621. Gray, Am. Journ. Sci. 8; Proc. Acad. Philad. 1863, 63; Manual, 193. Rothr. Fl. Alask. 447; Pl. , 40. Benth. & Hook. Gen. Pl. 1. 1009. Porter, Hayd. Rep. 1870, 476, & 4; Fl. Col. 52. Watson, King's Rep. 5. 127.
lica Archangelica. Schrank, Pfl. Lab. 13. Cham. & Schlecht. in Linnæa, Eat. & Wr. 127.
ficinalis. Hook. Fl. Bor.-Am. 1. 267. Meyer, Pl. Lab. 67. Torr. & Gray, 1. Lange, Fl. Grœnl. 127. Rothr. Fl. Alask. 447.
ospermum Gmelini. Bongard, Veg. Sitch. 141.
ticum Scoticum, var. Fisch. & Mey. Ind. Sem. Petrop. 1. 11. **Treviranus,** t. 19. 13.
lica officinalis. Hook. in Journ. Linn. Soc. 1. 157.

Ligusticum actæifolium. Bigel. Fl. Bost. 3 ed. 118.

Archangelica peregrina. Nutt.; Torr. & Gray, Fl. 1. 622. Walp. Rep. 2. 4[illegible]. Gray, Manual, 1 ed. 159 & 608. Cooper, Pac. R. Rep. 12. 62. Wood, Cl.-Bo[illegible], 381; Bot. & Fl. 137.

Angelica Gmelini. Wormsk.; Eat. & Wr. 127.

Cœlopleurum Gmelini. Ledeb. Fl. Ross. 2. 361. Walp. Rep. 5. 920.

A. hirsuta. Torr. & Gray, Fl. 1. 622. Torrey, Fl. N. Y. 1. 277. Darling. [illegible] Cestr. 2 ed. 102. Chapman, 104. Gray, Manual, 103.

Ferula villosa. Walter, 115. Pursh, 192. Poir. Suppl. 5. 679. Elliott, 1. 3[illegible] Spreng. in Roem. & Schult. Syst. 6. 598; Syst. 1. 914.

Cicuta venenosa. Greenway, Am. Phil. Soc. Trans. 3. 234.

Angelica hirsuta. Muhl. Cat. 2 ed. 30.

Pastinaca triquinata. Spreng. Spec. Umbel. 68, **t. 6, f. 12.**

Angelica triquinata. Nutt. Genera, 1. 186. Spreng. in Roem. & Schult. S[illegible] 6. 604; Syst. 1. 916. Elliott, 1. 352. Torrey, Fl. U. S. 315. DC. Prodr. 4. [illegible] Hook. Fl. Bor.-Am. 1. 267. Don, Mill. 3. 323. Beck, Bot. 147. Darling. Fl. Ce[illegible] 193. Dietr. 2. 962. Eat. & Wr. 127.

Oxypolis triquinata. Raf. in Bull. Bot. Soc. Genev. 1830, 214 (Litt.-Ber. zu [illegible] næa, 1833, 82); Med. Bot. 2. 250.

ARCHEMORA Fendleri. Gray, Pl. Fendl. 56; Proc. Acad. Philad. 1863 [illegible] Walp. Ann. 2. 710. Porter, Fl. Col. 52. Rothr. Pl. Wheeler, 40. Watson, I[illegible] Am. Acad. 11. 145. — The genus is referred to *Peucedanum* by Benth. & Hook. [illegible] Pl. 1. 920.

Berula angustifolia. Gray, Am. Journ. Sci. 2. 33. 408.

A. rigida. DC. Mem. Umbel. 52; Prodr. 4. 188. Don, Mill. 3. 338. Beck, [illegible] 148. Darling. Fl. Cestr. 195. Torr. & Gray, Fl. 1 631. Eat & Wr. 132. To[illegible] Fl. N. Y. 1. 278, **t. 36.** Bertol. Bot. Misc. 10. 31. Parry, Pl. Minn. 613. [illegible] man, 165. Lesqx. Fl. Ark. 363. Gray, Manual, 192. Macoun & Gibson, T[illegible] Bot. Soc. Edinb. 12. 328.

Sium rigidius. Linn. Spec. 251. Hill, Veg. Syst. 6. 34, **t. 32, f. 1.** Lam. [illegible] 1. 406. Walter, 114. Ait. Hort. Kew. 1. 350. Willd. Spec. 1. 1433; Enum. [illegible] Persoon, 1. 316. Pursh, 194. Elliott, 1. 353.

Œnanthe rigida. Crantz, Umbel. 85. Barton, Comp. Fl. Philad 1. 142. [illegible] Genera, 1. 189.

Sison marginatum. Michx. Fl. 1. 168. Persoon, 1. 317. Pursh, 194.

Sium marginatum. Poir. Suppl. 1. 622.

Sium denticulatum. Baldwin; Elliott, 1. 354 (Spreng. Neue Entdeck. 2. [illegible]). Spreng. Syst. 1. 905. Don, Mill. 3. 338.

Sium tricuspidatum. Elliott, 1. 354. Beck, Am. Journ. Sci. 1. 11. 175.

Pastinaca rigida. Spreng. in Roem. & Schult. 6. 586. Torrey, Fl. U. S. 314

A. denticulata. DC. Prodr. 4. 188. Hook. Comp. Bot. Mag. 1. 47.

A. tricuspidata. DC. l. c. Don, Mill. 3. 338. Eat. & Wr. 132.

Oxypolis rigida, denticulata & tricuspidata. Raf. in Bull. Bot. Soc. Genev. 1830, 214 (Litt.-Ber. zu Linnæa, 1833, 82).

Var. **ambigua.** Torr. & Gray, Fl. 1. 631. Torrey, l. c. Wood, Cl.-Book, 380.

Sium longifolium. Pursh, 194.

Œnanthe ambigua. Nutt. Genera, 1. 189. Barton, l. c. Spreng. in Roem. & Schult. Syst. 6. 421 (under *Œ. gymnorhiza*).

Pastinaca ambigua. Spreng. l. c. 6. 586. Torrey, Fl. U. S. 314. Dietr. 2. 970.

A. ambigua. DC. Prodr. 4. 188. Don, l. c. Beck, Bot. 148. Eat. & Wr. 132.

A. ternata. Nutt.; Torr. & Gray, l. c. Chapman, 163. Wood, Cl.-Book, 380.

Peucedanum ternatum. Nutt. Genera, 1. 182. Spreng. in Roem. & Schult. Syst. 6. 565 (under *P. officinale*). DC. Prodr. 4. 182. Don, Mill. 3. 335. Croom, Am. Journ. Sci. 1. 28. 165. Dietr. 2. 968. Eat. & Wr. 349. Wood, Bot. & Fl. 136.

Peucedanum officinale. Spreng. Syst. 1. 911, in part.

Sataria linearis. Raf. New Flora, 4. 21.

Neurophyllum longifolium. Torr. & Gray, Fl. 1. 613. Walp. Rep. 5. 862. Darby, Bot. 333. Wood, Cl.-Book, 387.

BERULA angustifolia. Koch, Deutsch. Fl. 2. 455. See syn. in Willd. Spec. 1. 1431 (as *Sium*); DC. Prodr. 4. 125; Ledeb. Fl. Ross. 2. 258. — Gray, Pl. Fendl. 55; Pl. Wright. 2. 65; Journ. Bost. Soc. Nat. Hist. 7. 146. Torrey, Sitgr. Rep. 160; Pac. R. Rep. 4. 92; Mex. Bound. 70; Bot. Wilkes, 317. Brew. & Wats. Bot. Calif. 1. 260.

Sium angustifolium. Linn. Spec. 2 ed. 1672. Engelm. Pl. Upp. Miss. 193. Benth. & Hook. Gen. Pl. 1. 893. Gray, Manual, 196. Watson, King's Rep. 5. 121; Pl. Wheeler, 9. Porter, Hayd. Rep. 1871, 481; Fl. Col. 50. Coulter, Hayd. Rep. 1872, 767. Rothr. Pl. Wheeler, 40.

Sium pusillum. Nutt.; Torr. & Gray, Fl. 1. 611. Walp. Rep. 2. 396.

? *Helosciadium* (?) *Californicum.* Hook. Fl. Bor.-Am. 1. 260. Don, Mill. 3. 282. Hook. & Arn. Bot. Beechey, 142. Torr. & Gray, Fl. 1. 607. Walp. Rep. 2. 392. Eat. & Wr. 267. Benth. & Hook. Gen. Pl. 1. 893. Brew. & Wats. l. c.

Sium (?) *incisum.* Torrey, Frem. Rep. 90.

BIFORA Americana. Benth. & Hook. Gen. Pl. 1. 926. Gray, Hall's Pl. Texas, 11.

Atrema Americana. DC. Mem. Umbel. 71, t. 18; Prodr. 4. 250. Don, Mill. 3. 382. Torr. & Gray, Fl. 1. 643. Dietr. 2. 990. Eat. & Wr. 151. Gray, Pl. Lindh. 212; Pl. Wright. 2. 65.

BOWLESIA lobata. Ruiz & Pavon, Fl. Peruv. 3. 28, t. 251. DC. Prodr. 4. 75. Hook. & Arn. Bot. Beechey, 347. Torr. & Gray, Fl. 1. 601. Gay, Fl. Chil. 3. 77. Torrey, Mex. Bound. 70. Gray, Ives' Rep. 15. Trevir. in Bot. Zeit. 19. 9. Boland. Cat. 13. Brew. & Wats. Bot. Calif. 1. 255.

B. tenera. Spreng. Syst. 1. 860. DC. Prodr. 4. 75. Hook. & Arn. Bot. Misc. 3. 346. Torr. & Gray, Fl. 1. 601. Gay, Fl. Chil. 3. 76. Gray, Pl. Wright. 2. 64.

B. geraniifolia. Cham. & Schlecht. in Linnæa, 1. 382. DC. Prodr. 4. 75.

B. nodiflora. Presl; DC. Prodr. 4. 75.

BUPLEURUM ranunculoides. Linn. Spec. 237. See syn. in DC. Prodr. 4. 131; Regel & Til. Fl. Ajan. 96; Koch, Fl. Germ. 250. — Hook. Fl. Bor.-Am. 1. 263. Don, Mill. 3. 290. Torr. & Gray, Fl. 1. 609. Eat. & Wr. 162. Ledeb. Fl. Ross. 2. 265. Seem. Bot. Herald, 32. Hook. f. Fl. Arct. 292. Rothr. Fl. Alask. 447. Porter, Hayd. Rep. 1871, 484. Coulter, same, 1872, 767.

B. angulosum. Cham. & Schlecht. in Linnæa, 1. 383; not Spreng. Hook. & Arn. Bot. Beechey, 124.

B. ROTUNDIFOLIUM, Linn. Beck, Bot. 145. Darling. Fl. Cestr. 191. Torr. & Gray, Fl. 1. 609. Torrey, Fl. N. Y. 1. 266. Chapman, 162. Gray, Manual, 195.

CARUM CARUI, Linn. Hook. Fl. Bor.-Am. 1. 261. Hook. f. Arct. Pl. 293. Pl. Bourgeau, 257.

C. Gairdneri. Benth. & Hook. Gen. Pl. 1. 891. Anderson, Cat. Pl. Nev. 121. Porter, Hayd. Rep. 1870, 476; 1871, 484. Watson, King's Rep. 5. 121; Pl. Wheeler, 9. Coulter, Hayd. Rep. 1872, 767. Gray, Proc. Am. Acad. 8. 385. Brew. & Wats. Bot. Calif. 1. 259.

Osmorhiza (?) *edulis.* Raf. Med. Bot. 2. 249.

Atœnia Gairdneri. Hook. & Arn. Bot. Beechey, 349.

Edosmia Gairdneri. Nutt.; Torr. & Gray, Fl. 1. 612. Walp. Rep. 5. 802. Torrey, Frem. Rep. 90; Bot. Wilkes, 320. Hook. in Lond. Journ. Bot. 6. 233. Benth. Pl. Hartw. 313. Durand, Pl. Pratten. 89. Newberry, Pac. R. Rep. 6. 75. Cooper, same, 12. 62. Gray, Proc. Bost. Soc. Nat. Hist. 7. 146; Proc. Am. Acad. 7. 344.

Peucedanum triternatum. Torr. & Gray, Pac. R. Rep. 2. 121.

C. (?) **Hallii.**

Seseli Hallii. Gray, Proc. Am. Acad. 8. 288. Porter, Fl. Col. 52.

Musenium Greenei. Gray, l. c. 387. Porter, l. c. 51.

C. Kelloggii. Gray, Proc. Am. Acad. 7. 344. Boland. Cat. 13. Brew. & Wats. Bot. Calif. 1. 259.

CAUCALIS microcarpa. Hook. & Arn. Bot. Beechey, 348. Torr. & Gray, Fl. 1. 636. Walp. Rep. 2. 421. Boland. Cat. 14. Brew. & Wats. l. c. 272.

Daucus brachiatus. Torrey, Pac. R. Rep. 4. 93; not Sieb.

C. NODOSA, Huds. Gray, Hall's Pl. Texas, 11. Brew. & Wats. l. c.

C. tenerrima. Scheele, Linnæa, 25. 256.

CHÆROPHYLLUM procumbens. Crantz, Umbel. 77. Lam. Dict. 1. 685. Persoon, 1. 320. Pursh, 195. Nutt. Genera, 1. 194. Barton, Comp. Fl. Phil. 1. 145. Elliott, 1. 357. DC. Prodr. 4. 225. Don, Mill. 3. 365. Beck, Bot. 149. Darling. Fl. Cestr. 198. Torr. & Gray, Fl. 1. 637. Dietr. 2. 982. Eat. & Wr. 191. Nees, Pl. Neuwied, 10. Chapman, 165. Gray, Manual, 197; Hall's Pl. Texas, 11.

Scandix procumbens. Linn. Spec. 257. Hill, Veg. Syst. 6. 48, t. **46**, f. **4**. Willd. Spec. 1. 1452. Ait. f. Hort. Kew. 2. 152. Muhl. Cat. 31.

Myrrhis bifida. Spreng. Prodr. Umbel. 29. Muhl.; Nutt. Genera, 1. 192.

Myrrhis procumbens. Spreng. Pl. Min. Cog. pug. 2. 56; Spec. Umbel. 130; Roem. & Schult. Syst. 6. 516; Syst. 1. 903. Torrey, Fl. U. S. 309.

Var. **Shortii.** Torr. & Gray, Fl. 1. 637. Walp. Rep. 2. 422.

C. Tainturieri. Hook. Comp. Bot. Mag. 1. 47. Torr. & Gray, Fl. 1. 638. Walp. Rep. 2. 422. Chapman, 165. Wood, Cl.-Book, 384; Bot. & Fl. 138. Gray, Hall's Pl. Texas, 11.

Var. **[dasycarpum.]** Hook. l. c. Torr. & Gray, l. c. Gray, Pl. Lindh. 211.

C. SATIVUM, Lam. Gray, Manual, 197.

CICUTA bulbifera. Linn. Spec. 255. Hill, Veg. Syst. 6. 49, t. **47**, f. **2**. Crantz, Umbel. 99. Willd. Spec. 1. 1445. Michx. Fl. 1. 165. Persoon, 1. 318. Pursh, 195. Nutt. Genera, 1. 195. Barton, Comp. Fl. Phil. 1. 143. Spreng. in Roem. & Schult. Syst. 6. 453; Syst. 1. 894. Bigel. Fl. Bost. 2 ed. 115. Torrey, Fl. U. S. 308; Fl. N. Y. 1. 267. DC. Prodr. 4. 99. Hook. Fl. Bor.-Am. 1. 260. Don, Mill. 3. 276. Beck, Bot. 143. Torr. & Gray, Fl. 1. 610. Dietr. 2. 940. Eat. & Wr. 197. Gray, Manual, 196.

Cicutaria bulbifera. Lam. Dict. 2. 3.

Keraskomion bulbiferum. Raf. New Flora, 4. 21.

C. Bolanderi. Gray, Proc. Am. Acad. 11. 139. Brew. & Wats. Bot. Calif. 1. 261.

C. Californica. Gray, l. c. 7. 344. Boland. Cat. 13. Brew. & Wats. l. c.

C. maculata. Hook. & Arn. Bot. Beechey, 142? Benth. Pl. Hartw. 313.

C. maculata. Linn. Spec. 256. Hill, Veg. Syst. 6. 49, t. **47**, f. **3**. Crantz, Umbel. 99. Gaertn. Fruct. t. **22**. Walter, 115. Willd. Spec. 1. 1446; Enum. 316. Persoon, 1. 318. Ait. f. Hort. Kew. 2. 149. Pursh, 195. Bigel. Fl. Bost. 70; Med. Bot. 1. 125, t. **12**, & 3. 181. Hoffm. Umbel. 2 ed. 181. Nutt. Genera, 1. 191.

, 1. 357. Spreng. in Roem. & Schult. Syst. 6. 453; Syst. 1. 804. Rich. l. Journ. Appx. 6. Torrey, Fl. U. S. 308; Fl. N. Y. 1. 267; Frem. Rep. 90; Bound. 70; Bot. Wilkes, 316. Raf. Med. Bot. 1. 107, **f. 22.** DC. Prodr. Hook. Fl. Bor.-Am. 1. 259; Comp. Bot. Mag. 1. 47. Don, Mill. 3. 276. Bot. 142. Darling. Fl. Cestr. 185. Lindl. Fl. Med. 34. Torr. & Gray, Fl. Dietr. 2. 940. Eat. & Wr. 197. Gray, Pl. Lindh. 210; Pl. Wright. 2. 65; ndl. 55; Proc. Bost. Soc. 7. 146; Manual, 196. Engelm. Pl. Upp. Miss. 193. ıan, 161. Hook. f. Arct. Pl. 293. Anderson, Cat. Pl. Nev. 121. Porter, Rep. 1870, 476; Fl. Col. 49. Watson, King's Rep. 5. 121; Pl. Wheeler, 9. r, Hayd. Rep. 1872, 767. Bailey, Am. Naturalist, 7. 9, **f. 4.** Brew. & Wats. alif. 1. 260.

utaria maculata. Lam. Dict. 2. 2; Ill. 2. 338, **t. 195, f. 2.**

ium (?) Douglasii. DC. Prodr. 4. 125. Hook. Fl. Bor.-Am. 1. 263. Don, . 295. Torr. & Gray, Fl. 1. 611. Dietr. 2. 948. Eat. & Wr. 430.

trachypleura.

ıspium montanum, var. *tenuiflorum.* Gray. Am. Journ. Sci. 2. 33. 408.

ıspium trachypleurum. Gray, Proc. Acad. Philad. 1863, 63. Porter, Fl. .

osa. Linn. Spec. 255. See syn. in Willd. Spec. 1. 1445; DC. Prodr. 4. 99; Fl. Ross. 2. 241; Pritzel, Icon. Index, 1. 266 & 2. 79. — Rich. Frankl. Journ. 6. Hook. Fl. Bor.-Am. 1. 259; Lond. Journ. Bot. 6. 233. Torr. & Gray, 310. Hook. f. Arct. Pl. 293. Pl. Bourgeau, 257. Reichenb. f. Icon. Fl. 21. 7, **t. 1853.**

UM MACULATUM, Linn. Pursh, 195. Bigel. Fl. Bost. 68; Med. Bot. 1. 113, Nutt. Genera, 1. 180. Torrey, Fl. U. S. 312; Fl. N. Y. 1. 282. Raf. Med. 118, **f. 25.** Hook. Fl. Bor.-Am. 1. 272. Beck, Bot. 150. Darling. Fl. Cestr. Torr. & Gray, Fl. 1. 640. Eat. & Wr. 205. Cooper, Pac. R. Rep. 12. 63. Struct. Bot. 426, **f. 845–850**; Manual, 198. Brew. & Wats. l. c. 258.

ANDRUM SATIVUM, Linn. Gray, Pl. Fendl. 57. Watson, l. c. 131.

TZIA lineata. Nutt. Genera, 1. 178. DC. Prodr. 4. 71. Don, Mill. 3. 256. Bot. 141. Torr. & Gray, Fl. 1. 600. Torrey, Fl. N. Y. 1. 263. Walp. Rep. Weddell, Chlor. And. 2. 201, **t. 68.** Clos in Gay, Fl. Chil. 3. 126. Hook. Antarct. 1. 287, **t. 100.** Chapman, 159. Gray, Manual, 190; Proc. Am. 3. 385. Benth. Fl. Austral. 3. 374.

ydrocotyle Chinensis. Linn. Spec. 339. Willd. Spec. 1. 1304. Spreng. in & Schult. Syst. 6. 355; Syst. 1. 878.

lrocotyle lineata. Michx. Fl. 1. 162. Persoon, 1. 302. Pursh, 190. Richard, ot. 77, **t. 66, f. 38.** Elliott, 1. 347. Torrey, Fl. U. S. 304. Bigel. Fl. Bost. 5. Eat. & Wr. 277.

ttenuata. Hook. & Arn. in Hook. Bot. Misc. 3. 346. Torr. Bot. Wilkes, 313. *Schaffneriana.* Schlecht. in Linnæa, 26. 370.

TOTÆNIA Canadensis. DC. Mem. Umbel. 42; Prodr. 4. 119. Hook. -Am. 1. 262; Comp. Bot. Mag. 1. 47. Don, Mill. 3. 291. Beck, Bot. 144. . Fl. Cestr. 189. Torr. & Gray, Fl. 1. 613; Pac. R. Rep. 2. 127. Dietr. Eat. & Wr. 214. Torrey, Fl. N. Y. 1. 269. Parry, Pl. Minn. 613. Chap- 31. Pl. Bourgeau, 257. Hance, Seem. Journ. Bot. 3. 340. Gray, Manual,

m Canadense. Linn. Spec. 252. Hill, Veg. Syst. 6. 11, **t. 9, f. 3.** Ait. Hort. . 351. Willd. Spec. 1. 1436; Enum. 314. Michx. Fl. 1. 168. Hoffm. Umbel. igel. Fl. Bost. 69.

Chærophyllum Canadense. Crantz, Umbel. 79. Persoon, 1. 320. Pursh, 195. Elliott, 1. 358.

Sium Canadense. Lam. Dict. 1. 407. Bigel. Fl. Bost. 2 ed. 114.

Myrrhis Canadensis. Gaertn. Fruct. 1. 109, t. 23. Nutt. Genera, 1. 192. Barton, Comp. Fl. Phil. 1. 141. Spreng. in Roem. & Schult. Syst. 6. 516; Syst. 1. 903. Torrey, Fl. U. S. 1. 310. Beck, Am. Journ. Sci. 1. 11. 175.

? *Cicuta perennans.* Walter, 116. Gmelin, Syst. 1. 485.

Scandix ternata. Moench, Meth. 101.

Conopodium Canadense. Koch, Umbel. 119.

? *Mesodiscus simplex & proliferus.* Raf. New Flora, 4. 20.

CYMOPTERUS alpinus. Gray, Am. Journ. Sci. 2. 33. 408 (Bull. Bot. Soc. Fr. 9. 679); Proc. Acad. Philad. 1863, 62. Porter, Hayd. Rep. 1871, 484; Fl. Col. 50. Rothr. Pl. Wheeler, 40.

——— ——? Torrey, Ann. Lyc. N. Y. 2. 207.

Oreoxis humilis. Raf.; Seringe, Bull. Bot. Soc. Genev. 1830, 214 (Litt.-Ber. zu Linnæa, 1833, 82).

C. (?) anisatus. Gray, Proc. Acad. Philad. 1863, 63. Watson, King's Rep. 5. 125. Porter, Fl. Col. 60.

C. terebinthinus, var. *fœniculaceus.* Gray, Am. Journ. Sci. 2. 33. 408.

C. campestris. Torr. & Gray, Fl. 1. 624. Walp. Rep. 2. 418.

C. cinerarius. Gray, Proc. Am. Acad. 6. 535. Anderson, Cat. Pl. Nev. 21. Brew. & Wats. Bot. Calif. 1. 267.

C. Fendleri. Gray, Pl. Fendl. 56; Pl. Thurb. 299. Walp. Ann. 2. 715. Torrey, Mex. Bound. 70.

C. terebinthinus. Gray, Ives' Rep. 15.

C. glaucus. Nutt. in Journ. Acad. Philad. 7. 28. Torr. & Gray, Fl. 1. 624. Eat. & Wr. 215. Walp. Rep. 2. 418. Watson, King's Rep. 5. 124.

C. globosus. Watson, Proc. Am. Acad. 11. 141. Brew. & Wats. l. c.

C. montanus. Torr. & Gray, Pac. R. Rep. 2. 120. Watson, King's Rep. 5. 123, in part.

C. montanus, var. *globosus.* Watson, l. c. 124, excl. fruit.

C. glomeratus. Raf. Journ. Phys. 1819, 100; Seringe, Bull. Bot. Gen. 1830, 214 (Litt.-Ber. zu Linnæa, 1833, 81). DC. Prodr. 4. 204. Don, Mill. 3. 350. Torr. & Gray, Fl. 1. 623. Eat. & Wr. 216. Nees, Pl. Neuwied, 10. Walp. l. c. Hook. in Lond. Journ. Bot. 6. 234. Engelm. Pl. Upp. Miss. 193. Gray, Pac. R. Rep. 12. 43; Proc. Acad. Philad. 1863, 62. Porter, Fl. Col. 60. Rothr. Pl. Wheeler, 40.

Selinum acaule. Pursh, 732. Bradbury, Cat. 336.

Thapsia glomerata. Nutt. Genera, 1. 184. Dietr. 2. 975.

Ferula (?) *Palmella.* Hook. Fl. Bor.-Am. 1. 268. Don, Mill. 3. 328. Eat. & Wr. 244.

C. longipes. Watson, King's Rep. 5. 124. Coulter, Hayd. Rep. 1872, 768.

C. montanus. Torr. & Gray, Fl. 1. 624; Pac. R. Rep. 2. 165. Walp. Rep. 2. 418. Hook. in Lond. Journ. Bot. 6. 234. Gray, Pl. Fendl. 56; Pl. Wright. 1. 79; Pl. Thurb. 299; Ives' Rep. 15; Am. Journ. Sci. 2. 33. 408; Proc. Acad. Philad. 1863, 62. Engelm. Pl. Upp. Miss. 193. Torrey, Pac. R. Rep. 4. 92; Mex. Bound. 70. Watson, King's Rep. 5. 123, in part & excl. var. Porter, Fl. Col. 60. Brew. & Wats. Bot. Calif. 1. 266.

C. macrorhizus. Buck. Proc. Acad. Philad. 1861, 455; fide Gray, same, 1862, 163.

Var. **purpurascens.** Gray, Ives' Rep. 15. Brew. & Wats. l. c. 267.

C. montanus, var. *globosus.* Watson, King's Rep. 5. 124, in part.

ensis. Gray, Proc. Am. Acad. 6. 536. Brew. & Wats. l. c.

Watson, King's Rep. 5. 123.

us. Watson, Am. Naturalist, 7. 300. Parry, same, 9. 271.

thinus. Torr. & Gray, Fl. 1. 624. Eat. & Wr. 216. Walp. Rep. 2. 418. Pac. R. Rep. 6. 75. Torrey, Bot. Wilkes, 322. Parry, Am. Naturalist, ew. & Wats. Bot. Calif. 1. 266.

erebinthinum. Hook. Fl. Bor.-Am. 1. 266, t. **95.** Don, Mill. 3. 322.

rus & thapsoides. Torr. & Gray, Fl. 1. 625. Walp. Rep. 2. 418.

laceus. Torr. & Gray, Fl. 1. 624. Walp. l. c. Gray, Proc. Am. Acad. atson, King's Rep. 5. 124. Porter, Hayd. Rep. 1871, 484. Coulter, 768.

LADIUM digitatum. DC. Mem. Umbel. 44, t. **11, f. A,** & Prodr. n, Mill. 3. 305, f. **63.** Torr. & Gray, Fl. 1. 617. Dietr. 2. 954. Eat. & Darby, Bot. 334. Gray, Hall's Pl. Texas, 11.

m. DC. l. c. t. **11, f. B**; Prodr. 4. 141. Don, Mill. 3. 305. Torr. & 617. Dietr. 2. 954. Gray, l. c. 11.

pinnata. Nutt.; Eat. & Wr. 116.

ilum. Engelm. & Gray, Pl. Lindh. 10. Gray, Hall's Pl. Texas, 11.

CAROTA, Linn. Walter, 113. Pursh, 191. Elliott, 1. 348. Barton, Phil. 1. 138. Torrey, Fl. U. S. 308; Fl. N. Y. 1. 280. Bigel. Fl. Bost. Beck, Bot. 149. Darling. Fl. Cestr. 197. Torr. & Gray, Fl. 1. 635. 221. Gray, Manual, 191. Porter, Fl. Col. 53.

aucoides. Raf. New Flora, 4. 23.

phyllus, &c. Raf. l. c. 4. 24.

. Michx. Fl. 1. 164. Poir. Suppl. 2. 118. Pursh, 192. Elliott, 1. 349. 4. 213. Hook. Comp. Bot. Mag. 1. 47. Don, Mill. 3. 358. New Flora, . & Gray, Fl. 1. 636; Pac. R. Rep. 2. 165. Dietr. 2. 987. Eat. & Wr. . Rep. 2. 419. Benth. Pl. Hartw. 313. Torrey, Pac. R. Rep. 4. 93. ne, 12. 63. Chapman, 161. Wood, Cl.-Book, 381; Bot. & Fl. 139. Austral. 3. 376. Boland. Cat. 14. Watson, Proc. Am. Acad. 11. 115. ats. Bot. Calif. 1. 272. — Referred to *D. australis,* Poepp., by Hook. f. in 1. 91 & Fl. Tasm. 1. 161.

, var. Spreng. in Roem. & Schult. Syst. 6. 474.

usillum. Raf. New Flora, 23.

lius. Raf. l. c. 26.

ophyllus. Torr. & Gray, Fl. 1. 636. Torrey, Bot. Wilkes, 321.

hyllus. Presl; DC. Prodr. 4. 213. Hook. Fl. Bor.-Am. 1. 271. Don, Dietr. 2. 978. Eat. & Wr. 221.

er. Torr. & Gray, l. c. Gray, Pl. Wright. 2. 65. Torrey, Mex.

a arguta. Torr. & Gray, Fl. 1. 641. Walp. Rep. 5. 922. Torrey, Pac. 4; Mex. Bound. 70, t. **26.** Gray, Proc. Am. Acad. 7. 342. Boland. rew. & Wats. Bot. Calif. 1. 257.

a arguta. Benth. & Hook. Gen. Pl. 1. 885.

gi. Gray, l. c. Boland. Cat. 13. Brew. & Wats. Bot. Calif. 1. 257.

n. sp. Benth. Pl. Hartw. 312. Walp. Ann. 2. 723.

, var. β. Torrey in Durand, Pl. Pratten. 89; Pac. R. Rep. 4. 94.

gii. Gray, l. c. 343. Boland. Cat. 13. Brew. & Wats. l. c.

DISCOPLEURA capillacea. DC. Mem. Umbel. 38, t. **8**, f. **A**; Prodr. 4. 106. Don, Mill. 3. 283. Beck, Bot. 144. Hook. Comp. Bot. Mag. 1. 47. Torr. & Gray, Fl. 1. 607. Dietr. 2. 944. Eat. & Wr. 227. Torrey, Fl. N. Y. 1. 266. Chapman, 162. Reichenb. f. Icon. Fl. Germ. 21. 8, t. **1850**, f. **9–15** (fruit). Gray, Manual, 195; Hall's Pl. Texas, 11.

Ammi majus. Walter, 113.

Ammi capillaceum. Michx. Fl. 1. 164. Persoon, 1. 308. Poir. Suppl. 1. 310. Pursh, 192. Nutt. Genera, 1. 179. Barton, Comp. Fl. Phil. 1. 138. Elliott, 1. 349.

Ammi rubricaule. Hornem. Hort. Hafn. 272. DC. Prodr. 4. 114. Don, Mill. 3. 287. Dietr. 2. 944.

Sison capillaceus. Spreng. Spec. Umbel. 112, in part; Roem. & Schult. Syst. 6. 411; Syst. 1. 887. Torrey, Fl. U. S. 306.

Sison rubricaule. Eat. & Wr. 429.

Ptilimnium capillaceum. Raf.; Seringe, Bull. Bot. Soc. Genev. 1830, 214 (Litt.-Ber. zu Linnæa, 1833, 82).

Var. (?) **costata.** DC. l. c., t. **8**, f. **B**; Prodr. 4. 107. Torr. & Gray, Fl. 1. 607. Gray, Manual, 195.

Ammi costatum. Elliott, 1. 350 (Spreng. Neue Entdeck. 2. 194).

Ptilimnium costatum. Raf. l. c.

D. costata. Chapman, 162. Wood, Cl.-Book, 387; Bot. & Fl. 141.

D. laciniata. Benth. & Hook. Gen. Pl. 1. 907.

Daucosma laciniatum. Engelm. & Gray, Pl. Lindh. 210. Gray, Pl. Wright. 1. 79 & 2. 65. Walp. Ann. 2. 701. Torrey, Mex. Bound. 70.

D. Nuttallii. DC. l. c. t. **9**; Prodr. 4. 107. Don, Mill. 3. 283. Torr. & Gray, Fl. 1. 608. Dietr. 2. 946. Eat. & Wr. 227. Torrey, Sitgr. Rep. 175. Chapman, 162. Gray, Manual, 195; Hall's Pl. Texas, 11.

? *Peucedanum verticillatum.* Raf. Fl. Lud. 81. Spreng. in Roem. & Schult. Syst. 6. 571. DC. Prodr. 4. 182. Don, Mill. 3. 335. Dietr. 2. 968. Eat. & Wr. 349.

? *Ptilimnium junceum.* Raf.; Seringe, ll. cc.

ERIGENIA bulbosa. Nutt. Genera, 1. 188. DC. Prodr. 4. 71. Don, Mill. 3. 256. Beck, Bot. 141. Hook. Comp. Bot. Mag. 1. 47. Torr. & Gray, Fl. 1. 645. Torrey, Fl. N. Y. 1. 283, t. **39**. Gray, Manual, 198.

Hydrocotyle bipinnata. Muhl. Suppl. Ind. Fl. Lanc. 236; Cat. 2 ed. 29. Barton, Prod. Fl. Phil. 36.

Sison bulbosum. Michx. Fl. 1. 169.

Ligusticum (?) *bulbosum.* Persoon, 1. 315. Spreng. in Roem. & Schult. 6. 555.

Sium bulbosum. Poir. Suppl. 1. 622.

Hydrocotyle composita. Pursh, 190. Poir. Suppl. 5. 702. Spreng. Spec. Umbel. 6, t. **5**, f. **9**; Roem. & Schult. Syst. 6. 355; Syst. 1. 878. Torrey, Fl. U. S. 304.

Hydrocotyle ambigua. Pursh, 732 (Rich. Monogr. Hydroc. 82). Poir. Suppl. 5. 702. Bradbury, Cat. 335. Spreng. in Roem. & Schult. Syst. 6. 356; Syst. 1. 876.

Hydrocotyle bulbosa. Eat. & Wr. 277.

ERYNGIUM aromaticum. Baldwin; Elliott, 1. 344 (Spreng. Neue Entdeck. 2. 194). Spreng. Syst. 1. 872. DC. Prodr. 4. 94. Don, Mill. 3. 272. Torr. & Gray, Fl. 1. 604. Dietr. 2. 938. Eat. & Wr. 138. Chapman, 160. Wood, Cl.-Book, 379; Bot. & Fl. 136.

E. Baldwinii. Spreng. Syst. 1. 870. DC. Prodr. 4. 92. Don, Mill. 3. 270. Hook. Comp. Bot. Mag. 1. 47. Torr. & Gray, Fl. 1. 605, excl. var. Dietr. 2. 937. Eat. & Wr. 238. Gray, Pl. Wright. 1. 78. Chapman, 160. Wood, ll. cc.

acile. Baldwin; Elliott, 1. 345 (Spreng. Neue Entdeck. 2. 194); not Dela-
Nutt. Genera, 1. 175. Eat. & Wr. 238.
rvantesii. Chapman, 160; not Delaroche.
ostratum. Wood, ll. cc., excl. var.
blanthus auriculatus. Raf.; Seringe, Bull. Bot. Soc. Genev. 1830, 214 (Litt.-
Linnæa, 1833, 82). Raf. New Flora, 4. 35.
anthus gracilis, humilis & tenuifolius. Raf. l. c. 35 & 36.

sum. Torrey, Ann. Lyc. N. Y. 2. 207; Marcy's Rep. 286, t. 6; Sitgr. Rep.
c. R. Rep. 4. 91; Mex. Bound. 70. DC. Prodr. 4. 91. Don, Mill. 3. 269.
Gray, Fl. 1. 603. Dietr. 2. 937. Eat. & Wr. 238. Young, Fl. Texas, 286.
ostratum. James in Long's Exped. 2. 325.

lum. Linn. Spec. 232, in part. Michx. Fl. 1. 163. Pursh, 189. Elliott,
Eat. & Wr. 238. Excluded by Torr. & Gray, Fl. 1. 606; a West Indian
ound in Florida only by Michaux.

ophyllum. Engelm. in Wisliz. Rep. 22. Walp. Ann. 2. 696. (Chi-

teri. Walp. Rep. 2. 389. Gray, Pl. Wright. 1. 78.
onatum. Torr. & Gray, Fl. 1. 604; not Hook. & Arn. Engelm. & Gray, Pl.
. Young, Fl. Texas, 286.

enworthii. Torr. & Gray, Fl. 1. 604. Walp. Rep. 2. 389. Gray, Pl.
09; Pl. Wright. 1. 79 & 2. 65. Torrey, Sitgr. Rep. 175; Mex. Bound. 70.
l. Texas, 286.

folium. Cav. Ann. 2. 133; Icon. 6, t. **555.** Delaroche, Eryng. 58. Tratt.
766. DC. Prodr. 4. 95. Gray, Pl. Wright. 2. 65.

lueri. Wood, Cl.-Book, 379; Bot. & Fl. 136.

rtiifolium. Juss.; Delaroche, Eryng. 46, t. **17.** Tratt. Arch. t. **768.**
n Roem. & Schult. Syst. 6. 328; Syst. 1. 872. DC. Prodr. 4. 92. J. Gay,
Ann. Sci. Nat. 3. 9. 162.

latum. Hook. Fl. Bor.-Am. 1. 259. Don, Mill. 3. 273. Torr. & Gray, Fl.
Eat. & Wr. 238. Walp. Rep. 2. 389. Benth. Bot. Sulph. 18. Torrey, Pac.
12; Bot. Wilkes, 315. Boland. Cat. 13. Brew. & Wats. Bot. Calif. 1. 255.
aticum. Hook. & Arn. Bot. Beechey, 142.

acifolium. Gray, Proc. Am. Acad. 8. 385.
iculatum. Hook. Lond. Journ. Bot. 6. 232. Newberry, Pac. R. Rep. 6. 75.

natum. Watson, Bot. Calif. 1. 255.

tum. Gray, Pl. Lindh. 210. Walp. Ann. 2. 696. Chapman, 160.
aticum. Michx. Fl. 1. 163.
ginianum. Elliott, 1. 343. Torr. & Gray, Fl. 1. 605, in part.

ratum. Nutt.; DC. Prodr. 4. 92. Don, Mill. 3. 270. Eat. & Wr. 238.
937. Gray, Pl. Wright. 1. 78.
Americanum. Walter, 112. Spreng. in Roem. & Schult. Syst. 6. 337.
r. 4. 97. Don, Mill. 3. 274. Dietr. 2. 939. Eat. & Wr. 238. Gray, Hall's
, 11.
tegrifolium. Walter, 112. Lam. Dict. 4. 760.
—— ? Elliott, 1. 345, under *E. gracile.*
'dwinii, var. *β.* Torr. & Gray, Fl. 1. 605.
nthus heterophyllus. Raf. New Flora, 4. 35.
stratum, var. *foliosum.* Wood, Cl.-Book, 378; Bot. & Fl. 136.

nelii. Gray, Pl. Lindh. 209. Walp. Ann. 2. 696. Chapman, 160.

E. virgatum. Lam. Dict. 4. 757. Persoon, 1. 300. Delaroche, Eryng. 49, t. Tratt. Arch. t. **781.** Pursh, 189. Spreng. in Roem. & Schult. Syst. 6. 327; S 1. 870. Torrey, Fl. U. S. 301. DC. Prodr. 4. 94. Lodd. Bot. Cab. t. **1636.** Mill. 3. 272. Beck, Bot. 142. Hook. Comp. Bot. Mag. 1. 47. Torr. & Gray, F 605. Dietr. 2. 938. Chapman, 160. Wood, Cl.-Book, 379; Bot. & Fl. 136.

E. ovalifolium. Michx. Fl. 1. 163. Persoon, l. c. Elliott, 1. 343. Eat. & Wr.

E. Virginianum. Lam. Dict. 4. 759. Persoon, 1. 300. Delaroche, Eryng t. **19.** Tratt. Arch. t. **782.** Pursh, 189. Barton, Comp. Fl. Phil. 1. 136. Spr in Roem. & Schult. Syst. 6. 327; Syst. 1. 871. Torrey, Fl. U. S. 301. DC. P 4. 94. Don, Mill. 3. 272. Beck, Bot. 142. Torr. & Gray, Fl. 1. 605, in part. T 2. 938. Eat. & Wr. 238. Gray, Pl. Lindh. 209 & 210; Manual, 191. Walp. 2. 696. Chapman, 160. Lesqx. Fl. Ark. 362.

E. aquaticum, var. *β*. Linn. Spec. 232. Crantz, Umbel. 117. Willd. Spec. 1.

? *E. fœtidum.* Walter, 112.

E. Plukenetii. Elliott, 1. 582. Eat. & Wr. 238.

E. Wrightii. Gray, Pl. Wright. 1. 78 & 2. 65; Hall's Pl. Texas, 11. Seem. Herald, 294. Walp. Ann. 5. 64. Torrey, Mex. Bound. 70.

E. tenue. Hook. & Arn. Bot. Beechey, 293; not Lam. Walp. Rep. 2. 389.

E. yuccæfolium. Michx. Fl. 1. 164. Chapman, 160. Lesqx. Fl. Ark. 362. G Manual, 191.

E. fœtidum. Linn. Spec. 232, in part.

E. aquaticum. Linn. Spec. 232, in part, excl. var. Hill, Veg. Syst. 5. 65, t f. 2. Crantz, Umbel. 117. Jacquin, Icon. Rar. 2. 13, t. **347**; Obs. Bot. 1. Walter, 112. Ait. Hort. Kew. 1. 325. Lam. Dict. 4. 758, in part. Willd. Spe 1357, excl. var.; Enum. 298. Persoon, 1. 300. Delaroche, Eryng. 57. Pursh, in part. Nutt. Genera, 1. 175. Elliott, 1. 342. Ker, Bot. Reg. 5, t. **372.** Spr in Roem. & Schult. Syst. 6. 316; Syst. 1. 868. Torrey, Fl. U. S. 301; Emo Rep. 409. DC. Prodr. 4. 95. Don, Mill. 3. 272. Beck, Bot. 142. Hook. Comp. Mag. 1. 47. Torr. & Gray, Fl. 1. 604, in part. Dietr. 2. 938. Eat. & Wr. Gray, Pl. Lindh. 209; Manual, 1 ed. 157. Parry, Pl. Minn. 612.

E. Americanum; prostratum.
aquaticum; petiolatum, præaltum, Virginianum, yuccæfolium.
articulatum; petiolatum.
Baldwinii; prostratum.
Cervantesii; Baldwinii.
coronatum; Hookeri.
fœtidum; Virginianum, yuccæfolium.
E. gracile; Baldwinii.
integrifolium; prostratum.
ovalifolium; virgatum.
Plukenetii; Virginianum.
prostratum; Baldwinii, diffusum.
tenue; Wrightii.
Virginianum; præaltum.
——?; prostratum.

EULOPHUS Americanus. Nutt.; DC. Mem. Umbel. 69, t. **2**, f. **M**; Pro 248. Don, Mill. 3. 381. Torr. & Gray, Fl. 1. 640. Eat. & Wr. 240. Gray, ual, 198.

? *Entasikon* (?) *tuberosum.* Raf. New Flora, 4. 29.

Smyrnium Americanum. Dietr. 2. 989.

E. Texanus. Benth. & Hook. Gen. Pl. 1. 882 & 885.

Tauschia Texana. Gray, Pl. Lindh. 211; Pl. Wright. 1. 79. Walp. Ann. 2.

EURYTÆNIA Texana. Torr. & Gray, Fl. 1. 633. Torrey, Marcy's Rep. t. 7. Gray, Hall's Pl. Texas, 11.

E. macrophylla. Buckl. Proc. Acad. Philad. 1861, 455; fide Gray, same, 1862,

FERULA Californica. Gray, Proc. Am. Acad. 7. 348. Brew. & Wats. Bot. Calif. 1. 272.

Leptotænia Californica. Nutt.; Torr. & Gray, Fl. 1. 630. Walp. Rep. 2. 412. Torrey, Pac. R. Rep. 4. 92.

F. dissoluta. Watson, Bot. Calif. 1. 271.

Leptotænia dissecta. Nutt. l. c. Walp. l. c. Hook. Lond. Journ. Bot. 6. 236. Gray, Ives' Rep. 15. Torrey, Bot. Wilkes, 319.

Cynapium (?) Bigelovii. Torrey, Pac. R. Rep. 4. 94.

F. dissecta. Gray, Proc. Am. Acad. 7. 348 & 8. 385; not Ledeb.

F. multifida. Gray, Proc. Am. Acad. 7. 348. Watson, King's Rep. 5. 127; Pl. Wheeler, 9. Porter, Hayd. Rep. 1871, 484. Coulter, same, 1872, 768. Brew. & Wats. Bot. Calif. 1. 271.

Leptotænia multifida. Nutt.; Torr. & Gray, Fl. 1. 630. Walp. Rep. 2. 412. Hook. Lond. Journ. Bot. 6. 236. Durand, Fl. Utah, 165.

F. Newberryi. Watson, Proc. Am. Acad. 11. 145. Brew. & Wats. l. c.

Peucedanum Newberryi. Watson, Am. Naturalist, 7. 301. Parry, same, 9. 271.

F. Canadensis; Ligusticum acteæfolium.
caruifolia; Peucedanum caruifolium.
dissecta; dissoluta.
Drummondii; Polytænia Nuttallii.
fœniculacea; Peucedanum fœniculaceum, macrocarpum, millefolium.
F. macrocarpa; Peucedanum macrocarpum.
nudicaulis & Nuttallii; Peucedanum nudicaule.
Palmella; Cymopterus glomeratus.
parvifolia; Peucedanum parvifolium.
villosa; Archangelica hirsuta.

GLYCOSMA ambiguum. Gray, Proc. Am. Acad. 8. 386. Brew. & Wats. Bot. Calif. 1. 262.

G. Bolanderi. Gray, l. c. Brew. & Wats. l. c.

Myrrhis Bolanderi. Gray, Proc. Am. Acad. 7. 346. Boland. Cat. 13.

G. occidentale. Nutt.; Torr. & Gray, Fl. 1. 639. Walp. Rep. 2. 423 & 5. 908. Hook. Lond. Journ. Bot. 6. 237. Cooper, Pac. R. Rep. 12. 63. Brew. & Wats. Bot. Calif. 1. 262.

Osmorhiza occidentalis. Torrey, Mex. Bound. 71; Bot. Wilkes, 324. Boland. Cat. 13.

Myrrhis occidentalis. Benth. & Hook. Gen. Pl. 1. 897. Gray, Proc. Am. Acad. 7. 346. Watson, King's Rep. 5. 122. Porter, Hayd. Rep. 1871, 484. Coulter, same, 1872, 768. Parry, Am. Naturalist, 9. 271.

HERACLEUM lanatum. Michx. Fl. 1. 166. Persoon, 1. 314. Poir, Suppl. 1. 619. Pursh, 192. Bigel. Fl. Bost. 67. Barton, Fl. Philad. 37; Comp. 1. 139. Nutt. Genera, 1. 181. Spreng. Umbel. 46; Roem. & Schult. Syst. 6. 580. Torrey, Fl. U. S. 313; Fl. N. Y. 1. 279; Frem. Rep. 90; Pac. R. Rep. 4. 92; Mex. Bound. 71. DC. Prodr. 4. 192. Bong. Veg. Sitch. 142. Hook. Fl. Bor.-Am. 1. 269; Lond. Journ. Bot. 6. 237. Don, Mill. 3. 342. Beck, Bot. 148. Darling. Fl. Cestr. 196. Torr. & Gray, Fl. 1. 632. Dietr. 2. 972. Eat. & Wr. 267. Ledeb. Fl. Ross. 2. 323. Gray, Pl. Fendl. 56; Manual, 191. Parry, Pl. Minn. 613. Cooper, Pac. R. Rep. 12. 63. Chapman, 165. Pl. Bourgeau, 257. Rothr. Fl. Alask. 447; Pl. Wheeler, 40. Watson, King's Rep. 5. 131. Porter, Hayd. Rep. 1871, 484; Fl. Col. 53. Coulter, Hayd. Rep. 1872, 768. Boland. Cat. 14. Brew. & Wats. Bot. Calif. 1. 271.

H. Spondylium. Nutt. Genera, 1. 181. James, Cat. 178. Torr. Ann. Lyc. N. Y. 2. 207. Cham. & Schlecht. in Linnæa, 1. 394. Hook. & Arn. Bot. Beechey, 142. Eat. & Wr. 267. Ledeb. Fl. Ross. 2. 322, in part.

H. Panaces. Spreng. Syst. 1. 912, in part.

H. auritum. Bischoff, Del. Sem. Hort. Heidelb. 1839 (Litt.-Ber. zu Linnæa, 14. 131). Walp. Rep. 2. 416.

H. dulce. Fisch. in Ind. Sem. Petrop. 9, Suppl. 23 (Linnæa, 18. 221). Ruprecht, Beitr. Fl. Russ. 2. 37. Walp. Rep. 5. 890.

Var. **vestitum.** Torr. & Gray, Fl. 1. 632. Torrey, Bot. Wilkes, 323.

H. Douglasii. DC. Prodr. 4. 193. Hook. Fl. Bor.-Am. 1. 270. Don, Mill. 3. 343. Dietr. 2. 972. Eat. & Wr. 267.

HYDROCOTYLE Americana. Linn. Spec. 234. Hill, Veg. Syst. 5. 23, t. 10, f. 1. Crantz, Umbel. 120. Lam. Dict. 3. 152. Willd. Spec. 1. 1361. Thunb. Diss. Bot. 2. 414. Michx. Fl. 1. 162. Persoon, 1. 301. Pursh, 190. Bigel. Fl. Bost. ed. 2. Barton, Fl. Phil. 36. Spreng. Spec. Umbel. 3, t. 2, f. 3; Roem. & Schult. Syst. 6. 346; Syst. 1. 876. Elliott, 1. 346. Torrey, Fl. U. S. 303; Fl. N. Y. 1. 262. Richard, Hydrocot. in Ann. Sci. Phys. 4. 45, t. 55, f. 10. DC. Prodr. 4. 64. Hook. Fl. Bor.-Am. 1. 257. Don, Mill. 3. 251. Beck, Bot. 140. Darling. Fl. Cestr. 183. Torr. & Gray, Fl. 1. 599. Dietr. 2. 928. Eat. & Wr. 277. Chapman, 158. Gray, Manual, 189.

H. interrupta. Muhl. Cat. 10. Elliott, 1. 345. Spreng. Syst. 1. 875. DC. Prodr. 4. 59, in part. Don, Mill. 3. 248. Beck, Bot. 140. Torr. & Gray, Fl. 1. 599, in part. Dietr. 2. 926. Gray, Pl. Lindh. 209; Pl. Wright, 2. 64; Manual, 190; Hall's Pl. Texas, 11. Chapman, 159.

H. vulgaris. Michx. Fl. 1. 161. Pursh, 190. Spreng. in Roem. & Schult. Syst. 6. 344, in part. Torrey, Fl. U. S. 303. Hook. Fl. Bor.-Am. 1. 257. Eat. & Wr. 277.

H. vulgaris, var. *verticillata.* Richard, Hydrocot. 27, in part.

H. prolifera. Kellogg, Proc. Calif. Acad. 1. 15. Brew. & Wats. Bot. Calif. 1. 254.

H. vulgaris. Cham. & Schlecht. in Linnæa, 1. 356, in part.

H. interrupta. Torr. & Gray, Fl. 1. 599, in part. Boland. Cat. 13.

H. natans. Torrey, Mex. Bound. 69.

H. ranunculoides. Linn. f. Suppl. 177. Lam. Dict. 3. 154. Willd. Spec. 1. 1363. Thunb. Diss. Bot. 2. 415. Persoon, 1. 302. Spreng. Spec. Umbel. 2, t. 1, f. 2; Roem. & Schult. Syst. 6. 349, excl. var.; Syst. 1. 877. Richard, Hydrocot. 55, t. 58, f. 18. Torrey, Fl. U. S. 304; Mex. Bound. 69; Bot. Wilkes, 313. Cham. & Schlecht. in Linnæa, 1. 373. DC. Prodr. 4. 65. Don, Mill. 3. 252. Darling. Fl. Cestr. 597. Torr. & Gray, Fl. 1. 600. Dietr. 2. 928. Eat. & Wr. 277. Clos in Gay, Fl. Chil. 3. 65. Gray, Pl. Wright. 2. 64; Manual, 189. Chapman, 159. Kellogg, Proc. Calif. Acad. 1. 14. Brew. & Wats. Bot. Calif. 1. 254.

H. Americana. Walter, 113? Newberry, Pac. R. Rep. 6. 75. Boland. Cat. 13.

H. cymbalariifolia. Muhl. Cat. 29. Elliott, 1. 346. Beck, Bot. 140.

H. natans. Cham. & Schlecht. in Linnæa, 1. 373; not Cyr. DC. Prodr. 4. 62, in part. Hook. & Arn. Bot. Beechey, 347. Torr. & Gray, Fl. 599. Boland. Cat. 13.

H. repanda. Persoon, 1. 302. Pursh, 190. Poir. Suppl. 5. 702. Spreng. Spec. Umbel. 4, t. 2, f. 4; Roem. & Schult. Syst. 6. 349, excl. var.; Syst. 1. 876. Richard, Hydrocot. 39, t. 57, f. 14. Elliott, 1. 347. Cham. & Schlecht. in Linnæa, 1. 30? DC. Prodr. 4. 62. Don, Mill. 3. 250. Hook. Comp. Bot. Mag. 1. 47. Torr. & Gray, Fl. 1. 600. Dietr. 2. 927. Eat. & Wr. 277. Gray, Pl. Lindh. 209; Manual, 189; Hall's Pl. Texas, 11. Chapman, 159. Referred to *H. Asiatica*, Linn., by Benth. Fl. Austral. 3. 347, and by Griseb. Fl. Brit. W. Ind. 307, as var. *repanda.*

H. reniformis. Walter, 113. Poir. Suppl. 3. 72.
? *H. erecta.* Linn. f. Suppl. 177. Lam. Dict. 3. 154. Willd. Spec. 1. 1362. nb. Diss. Bot. 2. 414. Persoon, 1. 302.
H. ficarioides. Michx. Fl. 1. 161.
Glyceria repanda. Nutt. Genera, 1. 177.
Chondrocarpus erectus. Nutt. Genera, Errata.

umbellata. Linn. Spec. 234. Hill, Veg. Syst. 5. 22, **t. 9, f. 2.** Crantz, Umbel. Walter, 112. Lam. Dict. 3. 152. Swartz, Obs. Bot. 111. Willd. Spec. 1. 1361. nb. Diss. Bot. 2. 414. Persoon, 1. 301. Ait. f. Hort. Kew. 2. 118. Pursh, 190. ng. Spec. Umbel. 1, **t. 1**; Roem. & Schult. Syst. 6. 345, excl. var.; Syst. 1. 875. ard, Hydrocot. 28, **t. 52, f. 3.** Elliott, 1. 346. Bigel. Fl. Bost. 2 ed. 109. ey, Fl. U. S. 303; Fl. N. Y. 1. 262; Mex. Bound. 69. DC. Prodr. 4. 60. Don, 3. 249. Beck, Bot. 140. Hook. Comp. Bot. Mag. 1. 46. Torr. & Gray, Fl. 1. Eat. & Wr. 277. Gray, Pl. Lindh. 209; Manual, 189; Hall's Pl. Texas, 11. man, 159. Lesqx. Fl. Ark. 362. Griseb. Fl. Brit. W. Ind. 307.
- *umbellulata.* Michx. Fl. 1. 161. Richard, l. c. 29, **t. 53, f. 4.**
- *incrassatum.* Raf. Fl. Lud. 81.
- *fluitans.* DC. Prodr. 4. 69. Don, Mill. 3. 255. Dietr. 2. 931.
- (?) **ambigua.** Gray, Manual, 190.

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mbigua; Erigenia bulbosa.
mericana; ranunculoides.
siatica; repanda.
pinnata & bulbosa; Erigenia bulbosa.
hinensis; Crantzia lineata.
mposita; Erigenia bulbosa.
rdata; Limnanthemum trachyspermum.
ymbalarifolia; ranunculoides.

H. erecta & ficarioides; repanda.
fluitans & incrassatum; umbellata.
interrupta; prolifera.
lineata; Crantzia lineata.
natans; prolifera, ranunculoides.
reniformis; repanda.
umbellulata; umbellata.
vulgaris; interrupta, prolifera.

USTICUM actæifolium. Michx. Fl. 1. 166. Persoon, 1. 315. Poir. Suppl. 2. Pursh, 193. Spreng. in Roem. & Schult. Syst. 6. 555; Syst. 1. 908. Torr. Fl. U. S. 313. Torr. & Gray, Fl. 1. 618. Chapman, 163. Gray, Manual, 194. *Ferula Canadensis.* Linn. Spec. 247, not Hort. Ups. Hill, Veg. Syst. 6. 37, **5, f. 2.** Crantz, Umbel. 72. Willd. Spec. 1. 1413. DC. Prodr. 4. 174. Hook. Bor.-Am. 1. 268. Don, Mill. 3. 327. Dietr. 2. 965.
? *Angelica lobata.* Walter, 115. Gmelin, Syst. 1. 482. Spreng. in Roem. & Schult. t. 6. 608.
Angelica lucida. Bartram, Trav. 327. Pursh, 193. Elliott, 1. 353.
Thaspium actæifolium. Nutt. Genera, 1. 197. DC. Prodr. 4. 154. Hook. Fl. -Am. 1. 265. Don, Mill. 3. 315. Beck, Bot. 146. Dietr. 2. 958.

apiifolium. Benth. & Hook. Gen. Pl. 1. 912. Gray, Proc. Am. Acad. 7. 347 & 85. Boland. Cat. 13. Porter, Fl. Col. 51. Watson, Proc. Am. Acad. 11. 140. w. & Wats. Bot. Calif. 1. 264.
Cynapium apiifolium. Nutt.; Torr. & Gray, Fl. 1. 641. Walp. Rep. 2. 426 & 22. Torrey, Pac. R. Rep. 4. 93.
Conioselinum Canadense. Newberry, Pac. R. Rep. 6. 75? Gray, Proc. Acad. lad. 1863, 63. Coulter, Hayd. Rep. 1872, 768?
r. **minus.** Gray; Brew. & Wats. Bot. Calif. 1. 264.

L. filicinum. Watson, Proc. Am. Acad. 11. 140.

L. apiifolium. Watson, King's Rep. 5. 125.

L. scopulorum. Parry, Am. Naturalist, 9. 271.

L. montanum. Benth. & Hook. Gen. Pl. 1. 912 & 914. Gray, Proc. Am. Acad. 7. 347. Porter, Fl. Col. 51. Rothr. Pl. Wheeler, 40.

Thaspium (?) montanum. Gray, Pl. Fendl. 57; Ives' Rep. 15; Am. Journ. Sci. 2. 33. 408; Proc. Acad. Philad. 1863, 63. Walp. Ann. 2. 702. Torrey, Stansb. Rep. 389; Pac. R. Rep. 4. 94. Durand, Fl. Utah, 165.

Var. **tenuifolium.**

Thaspium montanum, var. *tenuifolium.* Gray, Pl. Wright. 2. 65. Torrey, Mex. Bound. 70.

L. scopulorum. Gray, Proc. Am. Acad. 7. 347. Porter, Fl. Col. 51. Watson, Proc. Am. Acad. 11. 140. Brew. & Wats. Bot. Calif. 1. 264.

Conioselinum Canadense. Torrey, Pac. R. Rep. 4. 94.

Conioselinum Fischeri. Cooper, Pac. R. Rep. 12. 62? Gray, Am. Journ. Sci. 2. 33. 408; Proc. Acad. Philad. 1863, 63, in part. Torrey, Bot. Wilkes, 321?

L. apiifolium. Rothr. Pl. Wheeler, 40.

L. Scoticum. Linn. Spec. 250. See syn. in Willd. Spec. 1. 1424; Spreng. in Roem. & Schult. Syst. 6. 547; DC. Prodr. 4. 157; Ledeb. Fl. Ross. 2. 286. — Michx. Fl. 1. 166. Persoon, 1. 314. Pursh, 193. Nutt. Genera, 1. 185. Koch, Umbel. 104, f. 44–47. Bigel. Fl. Bost. 2 ed. 111. Torrey, Fl. U. S. 312. Cham. & Schlecht. in Linnæa, 1. 390. Hook. Fl. Bor.-Am. 1. 265. Bongard, Veg. Sitch. 141. Don, Mill. 3. 317. Beck, Bot. 146. Hook. & Arn. Bot. Beechey, 125. Torr. & Gray, Fl. 1. 618. Eat. & Wr. 300. Seem. Bot. Herald, 32. Cooper, Pac. R. Rep. 12. 38 & 62. Hook. f. Arct. Pl. 293. Rothr. Fl. Alask. 447. Gray, Manual, 194. Matthew, Fl. Acad. 21.

Haloscias Scoticum, Fries. Lange, Fl. Groenl. 127.

L. tenuifolium.

Conioselinum Fischeri. Gray, Proc. Acad. Philad. 1863, 63, in part.

MUSENIUM divaricatum. Nutt.; Torr. & Gray, Fl. 1. 642. Walp. Rep. 2. 427. Hook. Lond. Journ. Bot. 6. 237. Gray, Pl. Wright. 1. 79; Pac. R. Rep. 12. 43, t. 2. Engelm. Pl. Upp. Miss. 193.

Seseli lucidum. Nutt. in Fraser's Cat. 1813.

Seseli divaricatum. Pursh, 732. Bradbury, Cat. 336. Nutt. Genera, 1. 194. Spreng. in Roem. & Schult. Syst. 6. 406; Syst. 1. 886. DC. Prodr. 4. 146. Don, Mill. 3. 309. Dietr. 2. 956. Eat. & Wr. 423. Hook. f. Arct. Pl. 293.

Marathrum divaricatum. Raf. Journ. Phys. 89. 101 (Spreng. in Roem. & Schult. Syst. 6. 406).

Adorium crassifolium. Raf.; Seringe, Bull. Bot. Soc. Genev. 1830, 214 (Litt.-Ber. zu Linnæa, 1833, 82). Raf. New Flora, 1. 66.

Var. **Hookeri.** Torr. & Gray, l. c. Walp. l. c. Gray, Pac. R. Rep. 12. 43.

Seseli divaricatum. Hook. Fl. Bor.-Am. 1. 264. Sims, Bot. Mag. t. 1742.

M. angustifolium. Nutt.; Torr. & Gray, Fl. 1. 642. Walp. l. c.

M. trachyspermum. Nutt. l. c. Walp. l. c. Gray, Proc. Acad. Philad. 1863, 63. Boland. Cat. 13. Porter, Fl. Col. 51. Rothr. Pl. Wheeler, 40.

M. tenuifolium. Nutt.; Torr. & Gray, Fl. 1. 642. Walp. l. c. Torrey, Frem. Rep. 90. Gray, Pl. Wright. 1. 79. Pl. Bourgeau, 263.

ŒNANTHE Californica. Watson, Proc. Am. Acad. 11. 139. Brew. & Wats. Bot. Calif. 1. 264.

Œ. sarmentosa. Boland. Cat. 14.

Œ. sarmentosa. Presl, DC. Prodr. 4. 138. Don, Mill. 3. 303. Nutt.; Torr. & Gray, Fl. 1. 617. Dietr. 2. 952. Eat. & Wr. 330. Walp. Rep. 2. 400. Cooper, Pl. R. Rep. 12. 62. Gray, Proc. Am. Acad. 8. 385. Torrey, Bot. Wilkes, 320. Brew. & Wats. Bot. Calif. 1. 264.

? *Phellandrium aquaticum.* Pursh, 195.

Œnanthe Phellandrium. Nutt. Genera, 1. 189. Eat. & Wr. 330.

OSMORHIZA obtusa. Gray, Proc. Am. Acad. 7. 343.

Deweya (?) acaulis. Torrey, Pac. R. Rep. 4. 94.

OSMORHIZA brachypoda. Torrey; Durand, Pl. Pratten. 89. Torrey, Pac. R. Rep. 4. 93; Mex. Bound. 71. Brew. & Wats. Bot. Calif. 1. 262.

O. brevistylis. DC. Prodr. 4. 232. Hook. Fl. 1. 272, in part & excl. t. Don, Mill. 3. 370. Beck, Bot. 150. Darling. Fl. Cestr. 200. Torr. & Gray, Fl. 1. 638, in part. Eat. & Wr. 336. Walp. Rep. 2. 423. Torrey, Fl. N. Y. 1. 282; Nicol. Rep. 150. Hook. Lond. Journ. Bot. 6. 237. Engelm. Pl. Upp. Miss. 193. Chapman, 106. Pl. Bourgeau, 257. Gray, Manual, 197. Watson, King's Rep. 5. 122.

Myrrhis Claytoni. Michx. Fl. 1. 170. Poir. Suppl. 4. 49. Spreng. Umbel. 129, t. f. 6; Roem. & Schult. Syst. 6. 508, in part; Syst. 1. 901. Torrey, Fl. U. S. 309.

Chærophyllum Claytoni. Persoon, 1. 320. Pursh, 195. Elliott, 1. 358.

Scandix dulcis. Muhl. Cat. 31.

O. dulcis. Raf. 1817; Med. Bot. 2. 249.

Uraspermum hirsutum. Bigel. Fl. Bost. 2 ed. 112.

Myrrhis brevistylis. Dietr. 2. 984.

O. longistylis. DC. Prodr. 4. 232. Hook. Fl. Bor.-Am. 1. 271, **t. 96.** Don, Mill. 3. 369. Beck, Bot. 150. Darling. Fl. Cestr. 199. Torr. & Gray, Fl. 1. 638. Eat. & Wr. 336. Nees, Pl. Neuwied, 10. Walp. Rep. 2. 423. Torrey, Fl. N. Y. 1. 281, **38**; Nicol. Rep. 150. Parry, Pl. Minn. 613. Engelm. Pl. Upp. Miss. 193. Gray, Pac. R. Rep. 12. 43; Struct. Bot. 427, **f. 851–855**; Manual, 197. Pl. Bourgeau, 257. Miquel, Ann. Mus. Lugd.-Bat. 3. 64.

Uraspermum Claytoni. Nutt. Genera, 1. 193. Barton, Comp. Fl. Phil. 1. 144. Spreng. in Roem. & Schult. Syst. 6. 508. Bigel. Fl. Bost. 2 ed. 112.

Myrrhis longistylis. Torrey, Fl. U. S. 310. Beck, Am. Journ. Sci. 1. 11. 175.

O. villosa & cordata. Raf. Med. Bot. 2. 249.

Myrrhis Claytoni. Dietr. 2. 984.

O. nuda. Torrey, Pac. R. Rep. 4. 93; Bot. Wilkes, 324. Newberry, Pac. R. Rep. 6. 75. Rothr. Fl. Alask. 447. Anderson, Cat. Pl. Nev. 121. Watson, l. c. Boland. Cat. 13. Porter, Hayd. Rep. 1871, 484; Fl. Col. 50. Coulter, Hayd. Rep. 1872, 768. Gray, Proc. Am. Acad. 8. 386. Brew. & Wats. Bot. Calif. 1. 262.

O. brevistylis. Bongard, Veg. Sitch. 142. Hook. Fl. Bor.-Am. 1. 272, in part, t. **97.** Torr. & Gray, Fl. 1. 638, in part. Ledeb. Fl. Ross. 2. 354, in part.

O. divaricata. Nutt.; Torr. & Gray, Fl. 1. 639.

PASTINACA SATIVA, Linn. Pursh, 196. Barton, Comp. Fl. Phil. 1. 140. Torrey, Fl. U. S. 314; Fl. N. Y. 1. 278. Bigel. Fl. Bost. 2 ed. 113. Hook. Fl. Bor.-Am. 1. 269. Darling. Fl. Cestr. 196. Torr. & Gray, Fl. 1. 632. Eat. & Wr. 344.

PEUCEDANUM ambiguum. Nutt.; Torr. & Gray, Fl. 1. 626. Walp. Rep. 2. 711. Watson, Proc. Am. Acad. 11. 142. Brew. & Wats. Bot. Calif. 1. 269.

Eulophus ambiguus. Nutt. Journ. Acad. Philad. 7. 27. Eat. & Wr. 240.

P. lævigatum. Nutt.; Torr. & Gray, Fl. 1. 627. Hook. Lond. Journ. Bot. 6. 236.

P. tenuissimum. Hook. Lond. Journ. Bot. 6. 235. Walp. Ann. 1. 352.

P. abrotanifolium. Nutt. Pl. Gambel. in Proc. Acad. Philad. 4. 26, & Journ. 1. 184.

P. bicolor. Watson, King's Rep. 5. 129; Proc. Am. Acad. 11. 144.

P. caruifolium. Torr. & Gray, Fl. 1. 628. Walp. Rep. 2. 412. Engelm. Pl. [illegible] Miss. 193? Torrey, Pac. R. Rep. 4. 92. Newberry, same, 6. 75. Boland. Cat. [illegible] Watson, Proc. Am. Acad. 11. 143. Brew. & Wats. Bot. Calif. 1. 269.

Ferula caruifolia. Hook. & Arn. Bot. Beechey, 347.

P. marginatum. Benth. Pl. Hartw. 312. Walp. Ann. 2. 708.

P. dasycarpum. Torr. & Gray, Fl. 1. 628. Torrey, Pac. R. Rep. 4. 93; [illegible] Bound. 70. Watson, l. c. 145. Brew. & Wats. l. c. 270.

P. tomentosum. Benth. Pl. Hartw. 312. Walp. Ann. 2. 708. Torrey, Pac. [illegible] Rep. 4. 92. Boland. Cat. 13.

P. fœniculaceum. Hook. & Arn. Bot. Beechey, 348? Torrey, Mex. Bound. [illegible] 7 Boland. Cat. 14.

P. Euryptera. Gray, Proc. Am. Acad. 7. 348. Watson, l. c. 142. Brew. & W[illegible]ats l. c. 269.

Euryptera lucida. Nutt.; Torr. & Gray, Fl. 1. 629. Walp. Rep. 5. 885. To[illegible]rey, Mex. Bound. 70, t. 27. Referred to *Peucedanum* by Benth. & Hook. Gen. Pl. 1. [illegible]20.

P. farinosum. Geyer; Hook. Lond. Journ. Bot. 6. 235. Walp. Ann. 1. [illegible]352. Brew. & Wats. Bot. Calif. 1. 269.

P. fœniculaceum. Nutt.; Torr. & Gray, Fl. 1. 627. Walp. Rep. 2. 412. [illegible]Torrey, Nicol. Rep. 150. Hook. Lond. Journ. Bot. 6. 236. Engelm. Pl. Upp. [illegible]iss. 193. Watson, Proc. Am. Acad. 11. 143. Brew. & Wats. l. c. 270.

Ferula fœniculacea. Nutt. Genera, 1. 183. James, Cat. 178; Long's Exp[illegible]. 2. 104. Torrey, Ann. Lyc. N. Y. 2. 206. DC. Prodr. 4. 174. Hook. Fl. Bor.-A[illegible]. 1. 268, in part. Don, Mill. 3. 327. Dietr. 2. 965. Eat. & Wr. 245.

Pastinaca fœniculacea. Spreng. in Roem. & Schult. Syst. 6. 587; Syst. 1. [illegible]913. Nees, Pl. Neuwied, 10.

Lomatium villosum. Raf. Journ. Phys. 1819, 101.

Cogswellia villosa. Spreng. in Roem. & Schult. Syst. 6. 588.

Lomatium pubescens. Raf.; Seringe, Bull. Bot. Soc. Genev. 1830, 214 (Litt.-[illegible]er. zu Linnæa, 1833, 82).

P. Geyeri.

P. ambiguum. Hook. Lond Journ. Bot. 6. 235. Torrey, Bot. Wilkes, 318.

P. graveolens. Watson, King's Rep. 5. 128; Proc. Am. Acad. 11. 142.

Musenium tenuifolium. Hook. Lond. Journ. Bot. 6. 237. Referred to *Peucedan*[illegible] by Benth. & Hook. Gen. Pl. 1. 884.

Var. **alpinum.** Watson, King's Rep. 5. 128.

P. Hallii. Watson, Proc. Am. Acad. 11. 141. Brew. & Wats. Bot. Calif. 1. 269.

P. nudicaule. Gray, Proc. Am. Acad. 8. 385.

P. leiocarpum. Nutt.; Torr. & Gray, Fl. 1. 626. Walp. Rep. 2. 411. Hook. Lo[illegible] Journ. Bot. 6. 234. Torrey, Pac. R. Rep. 4. 92; Bot. Wilkes, 317. Cooper, Pac. Rep. 12. 63. Boland. Cat. 13. Watson, l. c. 141. Brew. & Wats. l. c. 268.

Seseli leiocarpum. Hook. Fl. Bor.-Am. 1. 263, t. 93. Don, Mill. 3. 309. Eat[illegible] Wr. 423.

P. triternatum. Gray, Proc. Am. Acad. 8. 385.

P. macrocarpum. Nutt.; Torr. & Gray, Fl. 1. 627. Walp. Rep. 2. 412. Ho[illegible] Lond. Journ. Bot. 6. 236. Torrey, Pac. R. Rep. 4. 92; Bot. Wilkes, 319. Bourgeau, 257. Anderson, Cat. Pl. Nev. 121. Watson, King's Rep. 5. 130; P[illegible] Am. Acad. 11. 144. Gray, Proc. Am. Acad. 8. 385. Parry, Am. Naturalist, 9. [illegible] Brew. & Wats. Bot. Calif. 1. 270.

Ferula fœniculacea. Hook. Fl. Bor.-Am. 1. 268, in part.

Ferula macrocarpa. Hook. & Arn. Bot. Beechey, 348.

P. fœniculaceum. Newberry, Pac. R. Rep. 6. 75? Cooper, same, 12. 62? Gray, Wes' Rep. 15?

P. nudicaule. Anderson, Cat. Pl. Nev. 121, in part. Boland. Cat. 13.

Thaspium macrocarpum. Pl. Bourgeau, 287.

Var. (?) **eurycarpum.** Gray, Proc. Am. Acad. 8. 385. Watson, same, 11. 144. Brew. & Wats. l. c. 270.

P. nudicaule, var. (?) *ellipticum.* Torr. & Gray, Pac. R. Rep. 2. 121. Walp. Ann. 75. Torrey, Pac. R. Rep. 4. 92.

Millefolium. Watson, King's Rep. 5. 129; Proc. Am. Acad. 11. 143. Brew. & Wats. l. c. 270.

Ferula fœniculacea. Hook. Fl. Bor.-Am. 1. 268, in part.

P. fœniculaceum. Cooper, Pac. R. Rep. 12. 63? Torrey, Bot. Wilkes, 318.

P. fœniculaceum, var. *daucifolium.* Torr. & Gray, Fl. 1. 627. Walp. Rep. 2. 412.

Nevadense. Watson, Proc. Am. Acad. 11. 143. Brew. & Wats. l. c.

Cymopterus glomeratus, var. Gray, Ives' Rep. 15.

P. nudicaule. Anderson, Cat. Pl. Nev. 121, in part. Watson, King's Rep. 5. 130.

nudicaule. Nutt.; Torr. & Gray, Fl. 1. 627. Walp. Rep. 2. 411. Engelm. Pl. Fendl. Miss. 193. Gray, Proc. Acad. Philad. 1863, 62. Torrey, Bot. Wilkes, 319. Porter, Fl. Col. 52. Watson, Proc. Am. Acad. 11. 144.

Smyrnium nudicaule. Pursh, 196.

Ferula nudicaulis. Nutt. Genera, 1. 183.

Pastinaca nudicaulis. Spreng. in Roem. & Schult. Syst. 6. 587; Syst. 1. 913.

Ferula Nuttalli. DC. Prodr. 4. 174. Hook. Fl. Bor.-Am. 1. 268. Don, Mill. 3. 327. Dietr. 2. 965. Eat. & Wr. 245.

Leptotænia dissecta. Gray, Am. Journ. Sci. 2. 33. 408.

Nuttallii. Watson, King's Rep. 5. 128; Proc. Am. Acad. 11. 142. Brew. & Wats. Bot. Calif. 1. 268.

P. latifolium. Nutt. l. c. Walp. l. c. Torrey, Bot. Wilkes, 317.

Ostruthium, Koch. (Doubtful; Newfoundland, not recent.)

Imperatoria Ostruthium, Linn. DC. l. c. 183. Hook. l. c. Torr. & Gray, Fl. 1. 629.

Parryi. Watson, Proc. Am. Acad. 11. 143.

P. macrocarpum. Parry, Am. Naturalist, 9. 271.

Parvifolium. Torr. & Gray, Fl. 1. 628. Walp. Rep. 2. 412. Torrey, Mex. Bound. 70. Boland. Cat. 14. Watson, l. c. 142. Brew. & Wats. Bot. Calif. 1. 269.

Ferula parvifolia. Hook. & Arn. Bot. Beechey, 348.

P. sativum, Benth. & Hook. Watson, King's Rep. 5. 128; Pl. Wheeler, 9.

Pastinaca sativa, Linn. Pursh, 196. Bigelow, Fl. Bost. 2 ed. 113. Beck, Bot. 148. Torr. & Gray, Fl. 1. 632. Gray, Manual, 192.

P. simplex. Nutt.; Watson, King's Rep. 5. 129; Proc. Am. Acad. 11. 142. Coulter, Hayd. Rep. 1872, 768. Brew. & Wats. Bot. Calif. 1. 269.

P. triternatum. Torrey, Sitgr. Rep. 160.

P. triternatum, var. *platycarpum.* Torrey, Stansb. Rep. 389. Durand, Fl. Utah, 165.

P. triternatum. Nutt.; Torr. & Gray, Fl. 1. 626; not Eckl. & Zeyh. Hook. Lond. Journ. Bot. 6. 235. Newberry, Pac. R. Rep. 6. 75. Anderson, Cat. Pl. Nev. 121. Torrey, Bot. Wilkes, 318. Watson, Proc. Am. Acad. 11. 142. Brew. & Wats. Bot. Calif. 1. 268.

Seseli triternatum. Pursh, 197. Spreng. in Roem. & Schult. Syst. 6. 405; Syst. 1. 886. DC. Prodr. 4. 146. Hook. Fl. Bor.-Am. 1. 264, t. 94. Don, Mill. 3. 309. Hook. & Arn. Bot. Beechey, 348. Dietr. 2. 956. Eat. & Wr. 423.

Eulophus triternatus. Nutt. in Journ. Acad. Philad. 7. 27. Eat. & Wr. 240.

P. Nuttallii. Walp. Rep. 2. 411.

Var. **leptocarpum.** Torr. & Gray, l. c. Hook. l. c. 6. 235. Torrey, l. c. 318.

P. Nuttallii, var. *leptocarpum.* Walp. l. c.

P. utriculatum. Nutt.; Torr. & Gray, Fl. 1. 628. Walp. Rep. 2. 412. Benth. Pl. Hartw. 312. Durand, Pl. Pratten. 89. Torrey, Pac. R. Rep. 4. 92 & 7. 12; Bot. Wilkes, 319. Newberry, Pac. R. Rep. 6. 75. Gray, Proc. Bost. Soc. 7. 146; Proc. Am. Acad. 8. 385. Boland. Cat. 13. Watson, l. c. 143. Brew. & Wats. l. c. 269.

P. villosum. Nutt.; Watson, King's Rep. 5. 131; Proc. Am. Acad. 11. 144. Brew. & Wats. l. c. 270.

P. fæniculaceum, var. γ. Torr. & Gray, Fl. 1. 627.

P. abrotanifolium; ambiguum.
ambiguum; Geyeri.
fæniculaceum; dasycarpum, macrocarpum, millefolium, villosum.
lævigatum; ambiguum.
latifolium; Nuttallii.
macrocarpum; Parryi.
marginatum; caruifolium.
Newberryi; Ferula Newberryi.
nudicaule; Hallii, macrocarpum, Nevadense.

P. Nuttallii; triternatum.
officinale; Archemora ternata.
tenuissimum; ambiguum.
teretifolium; Tiedemannia teretifolia.
ternatum; Archemora ternata.
tomentosum; dasycarpum.
triternatum; leiocarpum, simplex, Carum Gairdneri.
——*?;* Euryptera graveolens.

PIMPINELLA apiodora. Gray, Proc. Am. Acad. 7. 345. Boland. Cat. 13. Watson, King's Rep. 5. 121. Brew. & Wats. Bot. Calif. 1. 200.

Var. **nudicaulis.** Gray, Proc. Am. Acad. 8. 385.

P. integerrima. Benth. & Hook. Gen. Pl. 1. 894. Gray, Proc. Am. Acad. 7. 3[illegible]

Smyrnium integerrimum. Linn. Spec. 263. Hill, Veg. Syst. 6. 60, t. 58, f. Crantz, Umbel. 74. Desrous. in Lam. Dict. 3. 607. Willd. Spec. 1. 1468. Mich. Fl. 1. 171. Persoon, 1. 322. Ait. f. Hort. Kew. 2. 158. Pursh, 196. Nutt. Gene 1. 195. Elliott, 1. 360. Barton, Comp. Fl. Phil. 1. 146.

? *Angelica integrifolia.* Walter, 115. Gmelin, Syst. 1. 482. Spreng. in Roe & Schult. Syst. 6. 608. DC. Prodr. 4. 169. Don, Mill. 3. 823.

Sison integerrimus. Spreng. l. c. 6. 410; Syst. 1. 886. Torrey, Fl. U. S. 305.

Zizia integerrima. DC. Rapp. Pl. Rar. Jard. Gen. 3. 7; Prodr. 4. 100. Don, Mill. 3. 276. Beck, Bot. 143. Darling. Fl. Cestr. 187. Torr. & Gray, Fl. 1. 61 Dietr. 2. 940. Eat. & Wr. 485. Torrey, Fl. N. Y. 1. 271. Parry, Pl. Minn. 61. Chapman, 163. Gray, Manual, 195.

P. integrifolia. Wood, Bot. & Fl. 139.

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? *Cymopterus (?) littoralis.* Gray, Mem. Am. Acad. 6. 301; Pac. R. Rep. 12. 62 Benth. & Hook. Gen. Pl. 1. 905.

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:IADIUM Bolanderi. Gray, Proc. Am. Acad. 7. 346. Brew. & Wats. . 1. 263.

rnicum. Gray, l. c. 345. Brew. & Wats. l. c.
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S. Menziesii. Hook. & Arn. Bot. Beechey, 142 & 347. Hook. Fl. Bor.-Am. 258, t. 90. Don, Mill. 3. 264. Torr. & Gray, Fl. 1. 602. Eat. & Wr. 411. Wa. Rep. 2. 387. Benth. Pl. Hartw. 312. Torrey, Pac. R. Rep. 4. 91; Mex. Bou 70; Bot. Wilkes, 314. Cooper, Pac. R. Rep. 12. 62. Boland. Cat. 13. Gray, Pr Am. Acad. 8. 385. Watson, same, 11. 115. Brew. & Wats. Bot. Calif. 1. 256.

S. Nevadensis. Watson, Proc. Am. Acad. 11. 139. Brew. & Wats. l. c.

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S. tuberosa. Torrey, Pac. R. Rep. 4. 91. Boland. l. c. Brew. & Wats. l. c. 2

SELINUM Benthami. [Watson, Proc. Am. Acad. 11. 140, innom.] The f lowing citations refer in part to this species, in part to a second undescribed o See Benth. & Hook. Gen. Pl. 1. 915.

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Conioselinum Fischeri. Bongard, Veg. Sitch. 142; not Wimm. Hook. & A Bot. Beechey, 124. Hook. Fl. Bor.-Am. 1. 266. Don, Mill. 3. 321, in part. To & Gray, Fl. 1. 619. Ledeb. Fl. Ross. 2. 290, in part. Seem. Bot. Herald, 32 & Hook. f. Arct. Pl. 292 & 330. Rothr. Fl. Alaska, 447.

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S. Canadense. Michx. Fl. 1. 165. Persoon, 1. 300. Poir. Dict. 7. 66. Pur 192. Elliott, 1. 351. Benth. & Hook. Gen. Pl. 1. 915. Wood, Bot. & Fl. 140.

? *Athamanta Chinensis.* Linn. Spec. 245.

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S. capitellatum. Benth. & Hook. Gen. Pl. 1. 915. Watson, King's Rep. 5. Brew. & Wats. Bot. Calif. 1. 265.

Sphænosciadium capitellatum. Gray, Proc. Am. Acad. 6. 536. Anderson, Cat. Nev. 121.

S. Kingii. Watson, King's Rep. 5. 126. Brew. & Wats. Bot. Calif. 1. 265.

S. Pacificum. Watson, Proc. Am. Acad. 11. 140. Brew. & Wats. l. c.

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aureus; Thaspium aureum.
bulbosus; Erigenia bulbosa.
Canadense; Cryptotænia Canadensis.
capillaceus; Discopleura capillacea.
divaricatus; Apium divaricatum.
S. integerrimus; Pimpinella integerri
majus; Ammi majus.
marginatum; Archemora rigida.
pusillum; Apium divaricatum.
rubricaule; Discopleura capillacea.
trifoliatum; Thaspium aureum.

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m nodiflorum? Gray, Manual, 4 ed. Addenda.
onii. Benth. & Hook. Gen. Pl. 1. 888. Wood, Bot. & Fl. 140.
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Ledeb. Fl. Ross. 2. 260; Benth. & Hook. Gen. Pl. 1. 888, as *Apium.*
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311; Fl. N. Y. 1. 268; Nicol. Rep. 160; Bot. Wilkes, 316. DC. Prodr.
. Fl. Bor.-Am. 1. 262; Comp. Bot. Mag. 1. 47. Don, Mill. 3. 295.
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ı. Bigel. Fl. Bost. 69; not Linn. Muhl. Cat. 30. Nutt. Genera,
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1. 268; Emory's Rep. 408. Hook. Fl. Bor.-Am. 1. 262; Comp. Bot.
Beck, Bot. 144. Darling. Fl. Cestr. 190. Torr. & Gray, Fl. 1. 611.
). Hook. f. Arct. Pl. 330. Anderson, Cat. Pl. Nev. 121. Boland.

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re. Benth. & Hook. Gen. Pl. 1. 888 & 893. Wood, Bot. & Fl. 140.

ı; Berula angustifolia.
rigenia bulbosa.
Cryptotænia Canaden-
; Archemora rigida.
Cicuta maculata.
rula angustifolia.
cicutæfolium, Berula an-
utæfolium.

S. longifolium & marginatum; Archemora rigida.
nodiflorum; Apium nodiflorum.
pusillum; Berula angustifolia.
rigidius; Archemora rigida.
rugosum, suave & tenuifolium; cicutæfolium.
teretifolium; Tiedemannia teretifolia.
tricuspidatum; Archemora rigida.
trifoliatum; Thaspium aureum.

aureum. Nutt. Genera, 1. 196. Torr. & Gray, Fl. 1. 616. Walp. Torrey, Fl. N. Y. 1. 273. Darling. Fl. Cestr. 2 ed. 102. Parry, Pl. Engelm. Pl. Upp. Miss. 193. Chapman, 163. Gray, Manual, 195; as, 11.
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T. barbinode. Nutt. Genera, 1. 196. DC. Prodr. 4. 154. Don, Mill. 3. 315. Beck, Bot. 146. Darling. Fl. Cestr. 192. Torr. & Gray, Fl. 1. 616. Dietr. 2. 958. Eat. & Wr. 450. Walp. Rep. 2. 404. Torrey, Fl. N. Y. 1. 273; Nicol. Rep. 150. Parry, Pl. Minn. 613. Engelm. Pl. Upp. Miss. 193. Chapman, 163. Trevir. Bot. Zeit. 19. 10. Gray, Manual, 194. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 329.

Ligusticum barbinode. Michx. Fl. 1. 167. Persoon, 1. 315. Poir. Suppl. 3. 482. Pursh, 193. Elliott, 1. 352.

Smyrnium barbinode. Muhl. Cat. 31. Barton, Prodr. Fl. Phil. 38.

Thapsia trifoliata. Spreng. Spec. Umbel. 30; Roem. & Schult. Syst. 6. 615; Syst. 1. 917. Torrey, Fl. U. S. 317.

T. pinnatifidum. Gray, Manual, 194. Chapman, 163.

Zizia pinnatifida. Buckley, Am. Journ. Sci. 1. 45. 175.

T. Walteri. Shuttlw.; Benth. & Hook. Gen. Pl. 1. 913. Wood, Bot. & Fl. 139.

T. trifoliatum. Gray, Manual, 195. Chapman, 163. Watson, King's Rep. 5. 125. Porter, Hayd. Rep. 1871, 484; Fl. Col. 52. Coulter, Hayd. Rep. 1872, 768. Rothr. Pl. Wheeler, 40.

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Thaspium cordatum. Torr. & Gray, Fl. 1. 615; Pac. R. Rep. 2. 127. Walp. Rep. 2. 403. Durand, Fl. Utah, 165. Pl. Bourgeau, 257.

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Thapsia trifoliata. Linn. Spec. 262. Hill, Veg. Syst. 6. 57, t. 55, f. 4. Willd. Spec. 1. 1465. Poir. Dict. 7. 612. Persoon, 1. 322. Ait. f. Hort. Kew. 2. 156.

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A. quinquefolia. Decsne. & Planch. in Rev. Hortic. 1854, 104. Benth. & Hook. Gen. Pl. 1. 936. Gray, Manual, 199. Matthew, Fl. Acad. 20.

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A. racemosa. Linn. Spec. 273. Crantz, Umbel. 124. Hill, Veg. Syst. 16, t. **9**, f. **1**. Lam. Dict. 1. 224. Ait. Hort. Kew. 1. 382. Willd. Spec. 1. 1521; Enum. 332. Michx. Fl. 1. 185. Persoon, 1. 332. Schkuhr, Handb. 1. 250, t. **86**. Pursh, 209. Bigel. Fl. Bost. 122. Roem. & Schult. Syst. 6. 702. Elliott, 1. 373. James, Long's Exped. 2. 195. Torrey, Fl. U. S. 327; Ann. Lyc. N. Y. 2. 208; Fl. N. Y. 1. 284. Spreng. Syst. 1. 951. DC. Prodr. 4. 258. Hook. Fl. Bor.-Am. 1. 274; Comp. Bot. Mag. 1. 48. Don, Mill. 3. 388. Beck, Bot. 151. Darling. Fl. Cestr. 209. Spach, Hist. Veg. 8. 122. Torr. & Gray, Fl. 1. 646. Dietr. 2. 1034. Eat. & Wr. 131. Parry, Pl. Minn. 613. Chapman, 166. Seem. Journ. Bot. 6. 135. Gray, Manual, 199.

A. spinosa. Linn. Spec. 273. Crantz, Umbel. 123. Lam. Dict. 1. 223. Marsh. Arbust. 11. Walter, 117. Ait. Hort. Kew. 1. 382. Willd. Spec. 1. 1520; Enum. 332. Michx. Fl. 1. 186. Persoon, 1. 332. Pursh, 209. Roem. & Schult. Syst. 6. 701. Elliott, 1. 372. James, Long's Exped. 3. 154. Torrey, Fl. U. S. 328; Ann. Lyc. N. Y. 2. 208. Spreng. Syst. 1. 951. DC. Prodr. 4. 259. Don, Mill. 3. 389. Beck, Bot. 151. Spach, Hist. Veg. 8. 120. Torr. & Gray, Fl. 1. 647. Dietr. 2. 1035. Eat. & Wr. 131. Loud. Arb. 2. 999, f. **754**. Curtis, Bot. N. Car. 91. Chapman, 166. Pl. Bourgeau, 257. Seem. Journ. Bot. 6. 135. Gray, Manual, 199; Hall's Pl. Texas, 11.

? *Cherophyllum arborescens.* Linn. Spec. 259. Hill, Veg. Syst. 6. 55, t. **53**, f. **3**. Crantz, Umbel. 79. Lam. Dict. 1. 684. Willd. Spec. 1. 1457. Persoon, 1. 321. Don, Mill. 3. 367. Dietr. 2. 983.

A. trifolia. Decsne. & Planch. l. c. Benth. & Hook. l. c. Gray, Manual, 199.

Panax trifolium. Linn. Spec. 1058. Hill, Veg. Syst. 5. 25, t. **12**, f. **2**. Crantz, Umbel. 122. Lam. Dict. 2. 714. Walter, 253. Willd. Spec. 4. 1124. Michx. Fl. 2. 257. Persoon, 1. 298. Ait. f. Hort. Kew. 5. 482. Pursh, 191. Roem. & Schult.

2. Lodd. Bot. Cab. t. **405**. Barton, Comp. Fl. Phil. 1. 136. Elliott, el. Fl. Bost. 2 ed. 376. Torrey, Fl. U. S. 291; Fl. N. Y. 1. 287. Spreng. . DC. Prodr. 4. 252. Hook. Fl. Bor.-Am. 1. 273. Don, Mill. 3. 385. 152. Darling. Fl. Cestr. 182. Torr. & Gray, Fl. 1. 648. Eat. & Wr. 339. ual, 1 ed. 167. Chapman, 167. Seem. Journ. Bot. 6. 54.

ylla. Poir. Suppl. 1. 418.

usilla. Sims, Bot. Mag. t. **1334**. Elliott, 2. 692.

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rinacea. Hook. in Edinb. Phil. Journ. 1827, 64. DC. Prodr. 4. 259. 3. 389. Dietr. 2. 1035. Eat. & Wr. 131.

anax horridus. Decsne. & Planch. in Rev. Hortic. 1854, 105. Cooper, p. 12. 31 & 63. Gray, Proc. Am. Acad. 8. 387. Torrey, Bot. Wilkes, 325.

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alternifolia. Linn. f. Suppl. 125. Lam. Dict. 2. 116. L'Her. Corn. oem. & Ust. Mag. Bot. 6. 93). Ehrhart, Beitr. 3. 19. Ait. Hort. Kew. chmidt, Œstr. Baumz. 2. 15, t. **70**. Willd. Arb. 77; Spec. 1. 664; . Michx. Fl. 1. 93. Persoon, 1. 144. Nouv. Duham. 2. 157, t. **45**. . Roem. & Schult. Syst. 3. 323, & Mant. 251. Elliott, 1. 210. Guimp., yne, Abbild. t. **43**. Bigel. Fl. Bost. 2 ed. 58. Torrey, Fl. U. S. 180; . 288. . Spreng. Syst. 1. 451. DC. Prodr. 4. 271. Hook. Fl. Bor.-Am. 1. , Mill. 3. 398. Beck, Bot. 154. Darling. Fl. Cestr. 108. Tausch. in lora, 21. 732. Spach, Hist. Veg. 8. 92. Dietr. 1. 503. Torr. & Gray, Eat. & Wr. 210. Loud. Arb. 2. 1010, f. **760**. C. A. Meyer, Corn. in l. Petersb. 5. 6 & 13 (Ann. Sci. Nat. 3. 4. 59). Walp. Rep. 5. 932. Emer- Trees, 409 (2 ed. 2. 463, t.). Parry. Pl. Minn. 613. Curtis, Pl. N. Car. man, 167. Gray, Manual, 201.

na. Marsh. Arbust. 35.

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ea, var. *asperifolia.* DC. Prodr. 4. 272. Don, Mill. 3. 399. Loud. Arb.

sa, var. *Beyrichiana.* C. A. Meyer, Corn. 27 (Ann. Sci. Nat. 3. 4. 70).

rnica. C. A. Meyer, Corn. 30 (Ann. Sci. Nat. 3. 4. 72). Walp. Rep. 5. th. Pl. Hartw. 314. Brew. & Wats. Bot. Calif. 1. 275.

C. circinatus? Cham. in Linnæa, 3. 139.

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C. pubescens. Torrey, Mex. Bound. 71. Boland. Cat. 14; Proc. Calif. Ac... 3. 80.

C. Canadensis. Linn. Spec. 117. Hill, Veg. Syst. 11, t. **12**, f. **2**. Lam. Dict... 115. L'Her. Corn. 3, t. **1**. Ait. Hort. Kew. 1. 157. Usteri, Del. 2, t. **1**. Wil... Spec. 1. 661. Michx. Fl. 1. 91. Nouv. Duham. 2. 151. Persoon, 1. 143. Cur... Bot. Mag. t. **880**. Pursh, 107. Bigel. Fl. Bost. 59. Schrank, Pfl. Lab. 9. Roe... & Schult. Syst. 3. 319. Elliott, 1. 207. Lodd. Bot. Cab. t. **651**. Torrey, Fl. U. 177; Fl. N. Y. 1. 291; Bot. Wilkes, 326. Spreng. Syst. 1. 450. Maund, Bot. Ga... 3, t. **136**. DC. Prodr. 4. 274. Hook. Fl. Bor.-Am. 1. 277. C. A. Meyer, Pl. L... 66. Bongard, Veg. Sitch. 144. Don, Mill. 3. 400. Beck, Bot. 153. Audub... Birds, t. **164**. Spach, Hist. Veg. 8. 105. Dietr. 1. 504. Torr. & Gray, Fl. 1. 6... Ledeb. Fl. Ross. 2. 378. Emerson, Mass. Trees, 415 (2 ed. 2. 469). Rich. A... Exped. 429. Seem. Bot. Herald, 52. Tuckerman, Josselyn's Rar. 109, f. N... berry, Pac. R. Rep. 6. 75. Cooper, same, 12. 63. Hook. f. Arct. Pl. 293. Gr... Proc. Acad. Philad. 1863, 63. Rothr. Fl. Alask. 447. Pl. Bourgeau, 257. Gr... Manual, 200. Boland. Cat. 14. Coulter, Hayd. Rep. 1872, 768. Porter, Fl. Col... Brew. & Wats. Bot. Calif. 1. 274.

C. herbacea, var. *Canadensis.* Pall. Fl. Ross. 1. 52.

C. Suecica. Gray, Proc. Am. Acad. 8. 387.

C. circinata. L'Her. Corn. 7, t. **3** (Roem. & Ust. Mag. Bot. 6. 88). Usteri, ... 2, t. **2**. Schmidt, Œstr. Baumz. 2. 15, t. **69**. Willd. Spec. 1. 663; Enum. ... Nouv. Duham. 2. 156. Persoon, 1. 143. Ait. f. Hort. Kew. 1. 262. Poir. Sup... 354. Pursh, 108. Bigel. Fl. Bost. 59. Roem. & Schult. Syst. 3. 321 & Mant. ... Guimp., Otto & Hayne, Abbild. t. **86**. Torrey, Fl. U. S. 179; Ann. Lyc. N... 2. 208; Fl. N. Y. 1. 289; Frem. Rep. 90. Spreng. Syst. 1. 451. Beck, Am. Jo... Sci. 1. 10. 264. DC. Prodr. 4. 272. Hook. Fl. Bor.-Am. 1. 276. Don, Mill. 3. ... Beck, Bot. 153. Spach, Hist. Veg. 8. 95. Dietr. 1. 504. Torr. & Gray, Fl. 1. ... Eat. & Wr. 210. Loud. Arb. 2. 1014, f. **767**. C. A. Meyer, Corn. 10 & 29 (... Sci. Nat. 3. 4. 71). Walp. Rep. 5. 935. Emerson, Mass. Trees, 410 (2 ed. 2. ... t.). Rich. Arct. Exped. 429. Parry, Pl. Minn. 613. Pl. Bourgeau, 257. G... Manual, 200.

C. rugosa. Lam. Dict. 2. 115.

C. tomentulosa. Michx. Fl. 1. 91.

C. Drummondii. C. A. Meyer, Corn. 20 (Ann. Sci. Nat. 3. 4. 64). Walp. ... 5. 933.

C. alba. Hook. Comp. Bot. Mag. 1. 485.

C. stricta. Gray, Hall's Pl. Texas, 11.

C. florida. Linn. Spec. 117. Marsh. Arbust. 35. Lam. Dict. 2. 114. Wange... Beitr. 1. 17, t. **41**. Walter, 88. L'Her. Corn. 4. Ait. Hort. Kew. 1. 157. Schm... (Estr. Baumz. 2. 6, t. **52**. Willd. Spec. 1. 661; Enum. 164. Curtis, Bot. M... t. **526**. Michx. Fl. 1. 91. Persoon, 1. 143. Nouv. Duham. 2. 153. Michx. Arb. Amer. 3. 138, t. **3** (Sylva, 2. 114, t. **48**). Pursh, 108. Bigel. Fl. Bost. 5... Med. Bot. 2. 69, t. **73**. Barton, Veg. Mat. Med. 1, t. **3**. Roem. & Schult. Sys... 3. 319. Guimp., Otto & Hayne, Abbild. t. **19**. Elliott, 1. 207. Torrey, Fl. U. S... 178; Ann. Lyc. N. Y. 2. 208; Fl. N. Y. 1. 290; Nicol. Rep. 151; Emory's Rep. 40... Spreng. Syst. 1. 451. Beck, Am. Journ. Sci. 1. 10. 264; Bot. 153. Audubon, Birds... t. **8**, **73** & **122**. Raf. Med. Bot. 1. 131, f. **28**. DC. Prodr. 4. 273. Hook. Fl. Bor.-Am. 1. 277, in part; Comp. Bot. Mag. 1. 48. Don, Mill. 3. 400. Darling. Fl. Cestr. 106. Lindl. Fl. Med. 81. Dietr. 1. 504. Torr. & Gray, Fl. 1. 652. Eat. &

Wr. 209. Loud. Arb. 2. 1017, f. **769**. Emerson, Mass. Trees, 413 (2 ed. 2. 467, t.). *Rich.* Arct. Exped. 429. Engelm. Pl. Upp. Miss. 194. Curtis, Bot. N. Car. 60. *Lesqx.* Fl. Ark. 364. Chapman, 168. Blackie, Canad. Nat. 6. 1. L'Hortic. Fr. 1863, t. **14**. Gray, Manual, 200; Hall's Pl. Texas, 11.

Benthamidia florida. Spach, Hist. Veg. 8. 107.

C. glabrata. Benth. Pl. Hartw. 314; Bot. Sulph. 18. Walp. Rep. 5. 933. C. A. Meyer, Corn. 20 (Ann. Sci. Nat. 3. 4. 64). Brew. & Wats. Bot. Calif. 1. 275.

C. Nuttallii. Audubon, Birds, t. **467**. Torr. & Gray, Fl. 1. 652. Walp. Rep. 2. 435. Benth. Pl. Hartw. 312. Nutt. Sylva, 3. 51, t. **97**. Durand, Pl. Pratten. 89. Torrey, Pac. R. Rep. 4. 94; Mex. Bound. 71; Bot. Wilkes, 326. Newberry, Pac. R. Rep. 6. 24 & 75. Cooper, same, 12. 29 & 63. Boland. Cat. 14. Gray, Proc. Am. Acad. 8. 387. Brew. & Wats. Bot. Calif. 1. 274. Hall, Coult. Bot. Gazette, 2. 88.

C. florida. Hook. Fl. Bor.-Am. 1. 277, in part.

C. paniculata. L'Her. Corn. 9, t. **5** (Roem. & Ust. Mag. Bot. 6. 91). Ait. Hort. Kew. 1. 159. Schmidt, Œstr. Baumz. 2. 13, t. **68**. Willd. Spec. 1. 664; Enum. 165. Persoon, 1. 144. Nouv. Duham. 2. 157. Pursh, 109. Bigel. Fl. Bost. 59. Roem. & Schult. Syst. 3. 322 & Mant. 250. Elliott, 1. 209. Torrey, Fl. U. S. 179; Fl. N. Y. 1. 289, t. **41**; Emory's Rep. 141 & 408. Spreng. Syst. 1. 451. DC. Prodr. 4. 271. Hook. Fl. Bor.-Am. 1. 275. Don, Mill. 3. 398. Beck, Bot. 154. Darling. Fl. Cestr. 108. Tausch. in Regensb. Flora, 21. 732. Spach, Hist. Veg. 8. 98. Dietr. 1. 503. Torr. & Gray, Fl. 1. 651. Eat. & Wr. 210. Loud. Arb. 2. 1012, f. **765**. C. A. Meyer, Corn. 8 & 18 (Ann. Sci. Nat. 3. 4. 63). Walp. Rep. 5. 933. Emerson, Mass. Trees, 411 (2 ed. 2. 465, t.). Parry, Pl. Minn. 613. Curtis, Bot. N. Car. 61. Chapman, 167. Gray, Manual, 201; Hall's Pl. Texas, 11.

C. candidissima. Marsh. Arbust. 35. Bischoff, in Ind. Sem. h. Heidelb. 1847 (Linnæa, 25. 316).

? *C. racemosa.* Lam. Dict. 2. 116.

C. albida. Ehrh. Beitr. 4. 16. Moench, Meth. 108. Willd. Arb. 76.

C. pubescens. Nutt. Sylva, 3. 54. Torrey, Pac. R. Rep. 4. 95; Bot. Wilkes, 326. Newberry, Pac. R. Rep. 6. 75. Cooper, Am. Naturalist, 3. 407. Brew. & Wats. Bot. Calif. 1. 275. Hall, Coult. Bot. Gazette, 2. 88.

C. alba, var. β. Hook. Fl. Bor.-Am. 1. 276.

C. sericea, var. (?) *occidentalis.* Torr. & Gray, Fl. 1. 652. Gray, Proc. Am. Acad. 8. 387, in part.

C. Drummondii. Cooper, Pac. R. Rep. 12. 30 & 63. Anderson, Cat. Pl. Nev. 121.

C. sericea. Bolander, Cat. 14.

C. sericea. Linn. Mant. 2. 199. Murray, Syst. 13 ed. 134. Medicus, Bot. Beobacht. 1782, 309. Lam. Dict. 2. 117. L'Her. Corn. 5, t. **2** (Roem. & Ust. Mag. Bot. 6. 88). Ait. Hort. Kew. 1. 158. Moench, Meth. 108. Schmidt, Œstr. Baumz. 2. 9, t. **64**. Meerburgh, Pl. Sel. t. **1**. Willd. Arb. 75; Spec. 1. 663; Enum. 165. Persoon, 1. 143. Nouv. Duham. 2. 155. Pursh, 108. Barton, Mat. Med. 1, t. **9**. Roem. & Schult. Syst. 3. 320 & Mant. 250. Elliott, 1. 208. Guimp., Otto & Hayne, Abbild. t. **85**. Torrey, Fl. U. S. 178; Fl. N. Y. 1. 290. Spreng. Syst. 1. 451. Beck, Am. Journ. Sci. 1. 10. 264; Bot. 153. DC. Prodr. 4. 272, excl. var. γ. Hook. Fl. Bor.-Am. 1. 276; Lond. Journ. Bot. 6. 237? Don, Mill. 3. 399. Lindl. Fl. Med. 81. Tausch. in Regensb. Flora, 21. 732. Darling. Fl. Cestr. 107. Spach, Hist. Veg. 8. 99. Dietr. 1. 504. Torr. & Gray, Fl. 1. 651, excl. var. Eat. & Wr. 209. Nees, Pl. Neuwied, 10. Loud. Arb. 2. 1013, f. **766**. C. A. Meyer, Corn. 23 (Ann. Sci. Nat. 3. 4. 67). Walp. Rep. 5. 934. Emerson, Mass. Trees, 411 (2 ed. 2. 466, t.).

Parry, Pl. Minn. 613. Rich. Arct. Exped. 429. Engelm. Pl. Upp. Miss. 194. Gray, Pac. R. Rep. 12. 44; Manual, 200. Curtis, Bot. N. Car. 60. Lesqx. Fl. Ark. 364. Chapman, 167.

C. Amomum. DuRoi, Obs. Bot. 7; Harbk. 1. 165. Bischoff, Ind. Sem. h. Heidelb. 1847 (Linnæa, 25. 317).

? *C. cærulea.* Lam. Dict. 2. 116.

? *C. rubiginosa.* Ehrhart, Beitr. 4. 15.

? *C. alba.* Walter, 88. Hook. Comp. Bot. Mag. 1. 48.

C. cyanocarpus. Moench, Meth. 108.

C. lanuginosa. Michx. Fl. 1. 92. Poir. Suppl. 2. 355.

? *C. polygama.* Raf. Fl. Lud. 78. DC. Prodr. 4. 274. Don, Mill. 3. 401. Dietr. 1. 505.

C. obliqua. Raf. Ann. Nat. 13.

C. sessilis. Torrey in Durand, Pl. Pratten. 89; Pac. R. Rep. 4. 94, t. 7. Brew. & Wats. Bot. Calif. 1. 274.

C. stolonifera. Michx. Fl. 1. 92. Persoon, 1. 143. Nouv. Duham. 2. 159. Poir. Suppl. 2. 355. Torr. & Gray, Fl. 1. 650. Torrey, Fl. N. Y. 1. 289; Nicol. Rep. 151; Frem. Rep. 90; Emory's Rep. 408. Emerson, Mass. Trees, 410 (2 ed. 2. 465). Gray, Pl. Fendl. 57; Pac. R. Rep. 12. 44; Manual, 200. Nutt. Sylva, 3. 55. Rich. Arct. Exped. 429. Seem. Bot. Herald, 52. Engelm. Pl. Upp. Miss. 194. Newberry, Pac. R. Rep. 6. 75. Hook. f. Arct. Pl. 293. Rothr. Fl. Alask. 447. Gard. Chronicle, 2. 4. 678, f. 138. Brew. & Wats. Bot. Calif. 1. 275.

C. alba. Lam. Dict. 2. 115, in part; not Linn. Wangenh. Amer. 91. L'Her. Corn. 6, in part. Willd. Spec. 1. 662, in part. Pursh, 109. Bigel. Fl. Bost. 58. Nutt. Genera, 1. 98; Sylva, 3. 55. Roem. & Schult. 3. 321, in part. Barton, Comp. Fl. Phil. 1. 87. Rich. Frankl. Journ. Appx. 5. James, Long's Exped. 2. 326. Torrey, Fl. U. S. 179; Ann. Lyc. N. Y. 2. 208. DC. Prodr. 4. 272, in part. Hook. Fl. Bor.-Am. 1. 276, excl. var. Beck, Bot. 154. Eat. & Wr. 210. Loud. Arb. 2. 1011, in part. C. A. Meyer, Corn. 7 & 15 (Ann. Sci. Nat. 3. 4. 60). Walp. Rep. 5. 932.

C. sanguinea. Marsh. Arbust. 36? Pursh, 109. Elliott, 1. 208. Torrey, Fl. U. S. 179. Hook. Fl. Bor.-Am. 1. 276. Beck, Bot. 154. Eat. & Wr. 209.

C. Purshii. Don, Mill. 3. 399. Loud. Arb. 2. 1011.

C. pubescens. Cooper, Pac. R. Rep. 12. 31 & 63. Watson, King's Rep. 5. 131; Pl. Wheeler, 10. Porter, Hayd. Rep. 1871, 484; Fl. Col. 53. Coulter, Hayd. Rep. 1872, 768. Rothr. Pl. Wheeler, 40.

C. sericea, var. *occidentalis.* Gray, Proc. Am. Acad. 8. 387, in part.

C. stricta. Lam. Dict. 2. 116. L'Her. Corn. 8, t. 4 (Roem. & Ust. Mag. Bot. 90). Ait. Hort. Kew. 1. 159. Schmidt, Œstr. Baumz. 2. 12, t. 67. Willd. Arb. 77; Spec. 1. 663; Enum. 165. Persoon, 1. 144. Nouv. Duham. 2. 157. Pursh, 109. Roem. & Schult. Syst. 3. 322 & Mant. 250. Elliott, 1. 209. Torrey, Fl. U. S. 180. Spreng. Syst. 1. 451. DC. Prodr. 4. 272 (as *C. striata*). Hook. Fl. Bor.-Am. 1. 275. Don, Mill. 3. 399. Beck, Bot. 154. Spach, Hist. Veg. 8. 96. Dietr. 1. 650. Torr. & Gray, Fl. 1. 651. Eat. & Wr. 210. Loud. Arb. 2. 1012, f. 763, 764. C. Meyer, Corn. 9 & 19 (Ann. Sci. Nat. 3. 4. 64). Walp. Rep. 5. 933. Gray, Pl. Fendl. 57; Manual, 200. Curtis, Bot. N. Car. 61. Lesqx. Fl. Ark. 364. Chapman, 167.

? *C. sanguinea.* Walter, 88.

C. cyanocarpus. Gmelin, Syst. 1. 257. Ehret. Pl. Sel. Suppl. t. 101.

C. cærulea. Meerb. Icon. Pict. t. 3.

C. fastigiata. Michx. Fl. 1. 92. Persoon, 1. 144. Nouv. Duham. 2. 156. Poir. Suppl. 2. 356.

uecica. Linn. Spec. 118. See syn. in Willd. Spec. 1. 660; Roem. & Schult. 3. 318; DC. Prodr. 4. 274; Ledeb. Fl. Ross. 2. 377; Pritzel, Index Icon. Bot. 1. —L'Her. Corn. 2, **t. 2.** Cham. & Schlecht. in Linnæa, 3. 138. Audubon, ı, **t. 193.** Meyer, Pl. Lab. 66. Hook. Fl. Bor.-Am. 1. 277. Hook. & Arn. Bot. hey, 125. Torr. & Gray, Fl. 1. 653. Eat. & Wr. 209. Seem. Bot. Herald, 32. . Arct. Exped. 429. Lange, Fl. Groenl. 127. Hook. f. Arct. Pl. 293. Gray, . Acad. Philad. 1863, 63. Rothr. Fl. Alask. 447.

'orreyi. Watson, Proc. Am. Acad. 11. 145. Brew. & Wats. Bot. Calif. 1. 275.

'nalaskensis. Ledeb. Fl. Ross. 2. 378. Rothr. Fl. Alask. 447.

'. *Canadensis.* Cham. & Schlecht. in Linnæa, 3. 139.

RRYA buxifolia. Gray, Proc. Am. Acad. 7. 349. Bolander, Cat. 27. Brew. ats. Bot. Calif. 1. 276.

lliptica. Dougl.; Lindl. Bot. Reg. 20, **t. 1686** (Ann. Sci. Nat. 2. 2. 157; ber. zu Linnæa, 1835, 55); Journ. Hort. Soc. 5. 137 (Paxt. Fl. Gard. 1. 44); Veg. d. 295, **f. 293.** Hook. Fl. Bor.-Am. 2. 143. Benth. Pl. Hartw. 335. Torrey, Bound. 205. Boland. in Proc. Calif. Acad. 3. 82; Cat. 27. Maout & Decsne. . Bot. 256, **figs.** Watson, King's Rep. 5. 132. Gordon, Garden, 4. 104, **fig.** . & Wats. Bot. Calif. 1. 276.

avescens. Watson, Am. Naturalist, 7. 301; Pl. Wheeler, 9. Brew. & Wats. Calif. 1. 276.

. *elliptica.* Torrey, Pac. R. Rep. 4. 136.

. ——? Watson, King's Rep. 5. 421.

. **Palmeri.** Watson, Bot. Calif. 1. 276.

remonti. Torrey, Pac. R. Rep. 4. 136. Gray, Proc. Am. Acad. 7. 349. ıd. Cat. 27. Brew. & Wats. Bot. Calif. 1. 276.

ndheimeri. Torrey, Pac. R. Rep. 4. 136; Mex. Bound. 205.

eatchii. Kellogg, Proc. Calif. Acad. 5. 40. (Cerros Islands.)

rightii. Torrey, Pac. R. Rep. 4. 136; Mex. Bound. 205.

SA capitata. Walter, 253. Poir. in Lam. Dict. 4. 508; Suppl. 5. 740. c. f. Arb. Amer. 2. 257, **t. 20** (Sylva, **t. 113**). Ait. f. Hort. Kew. 5. 480. t, 2. 685. Hook. Comp. Bot. Mag. 2. 62. Eat. & Wr. 329. Spach, Hist. Veg. 4. Chapman, 168. Wood, Cl.-Book, 392; Bot. & Fl. 143.

. *Oyeche.* Marsh. Arbust. 97.

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. *tomentosa.* Poir. in Lam. Dict. 4. 508.

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. *montana.* Gaertn. Fruct. 3. 201, **t. 216** (fruit).

aroliniana. Poir. in Lam. Dict. 4. 507; Lam. Ill. 3. 442, **t. 851, f. 1.**

N. *biflora.* Walter, 253. Poir. in Lam. Dict. 4. 508.

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. *aquatica.* Curtis, Bot. N. Car. 62. Chapman, 168.

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. *aquatica.* Linn. Spec. 1058, in part. St. Hil. Fam. Nat. 2. 152. Persoon, . Michx. f. Arb. Amer. 2. 165, **t. 22** (Sylva, **t. 111**). Roem. & Schult. Syst.

5. 576. Barton, Comp. Fl. Phil. 2. 192. Spreng. Syst. 1. 832. Audubon, Birds, t. **133**. Elliott, 2. 684. Dietr. 1. 878. Eat. & Wr. 329. Spach, Hist. Veg. 10. 464. Darby, Bot. 492.

N. integrifolia. Ait. Hort. Kew. 3. 446. Persoon, 2. 614.

? *N. Canadensis.* Poir. in Lam. Dict. 4. 507.

N. biflora. Michx. Fl. 2. 259. Willd. Spec. 4. 1113; Enum. 1061. Ait. f. Hort. Kew. 5. 479. Pursh, 177. Poir. Suppl. 4. 115. Torrey, Compend. 372. Beck, Bot. 307. Loud. Arb. 3. 1317, f. **1195, 1196.**

N. villosa. Bigel. Fl. Bost. 380.

Var. **sylvatica.**

N. sylvatica. Marsh. Arbust. 97. Michx. f. Arbr. Amer. 2. 260, t. **21** (Sylva, t. **110**). Poir. Suppl. 4. 116. Barton, Comp. Fl. Phil. 2. 193.

? *N. multiflora.* Walter, 253. Darby, Bot. 492. Curtis, Bot. N. Car. 62. Lesqx. Fl. Ark. 364.

N. villosa. Michx. Fl. 2. 258. Willd. Spec. 4. 1112. Ait. f. Hort. Kew. 5. 479. Pursh, 177. Nutt. Genera, 2. 276. Roem. & Schult. Syst. 5. 575. Spreng. Syst. 1. 832. Torrey, Compend. 372. Dietr. 1. 878. Loud. Arb. 3. 1317, f. **1197, 1198.**

? *N. biflora.* James, Long's Exped. 3. 5 & 164. Torrey, Ann. Lyc. N. Y. 2. 200. Nutt. Fl. Ark. 167.

N. uniflora. Wangenh. Amer. 83, t. **27**, f. **57.** Walter, 253. Elliott, 2. 686. Eat. & Wr. 329. Darby, Bot. 493. Curtis, Bot. N. Car. 62. Chapman, 168. Gray, Manual, 201.

N. aquatica. Linn. Spec. 1058, in part. Marsh. Arbust. 96. Poir. in Lam. Dict. 4. 507.

N. denticulata. Ait. Hort. Kew. 3. 446. Persoon, 2. 615. Gaertn. Fruct. 3. 203, t. **216** ? Willd. Spec. 4. 1114. Pursh, 178. Poir. Suppl. 4. 115. Nutt. Genera, 2. 236. Roem. & Schult. Syst. 5. 577. Spreng. Syst. 1. 832. Dietr. 1. 879.

N. angulosa. Poir. in Lam. Dict. 4. 507; Lam. Ill. 3. 442, t. **851**, f. **2.** Roem. & Schult. Syst. 5. 578.

N. palustris. Salisb. Prodr. 175.

N. tomentosa. Michx. Fl. 2. 259. Persoon, 2. 615. Willd. Spec. 4. 1113. Pursh, 177. Nutt. Genera, 2. 236. Roem. & Schult. Syst. 5. 577. Elliott, 2. 685. Spreng. Syst. 1. 832. Audubon, Birds, t. **13.** Dietr. 1. 879. Eat. & Wr. 329. Darby, Bot. 493.

N. angulisans. Michx. Fl. 2. 259. Dietr. 1. 879. Spach, Hist. Veg. 10. 465.

N. grandidentata. Michx. f. Arb. Amer. 2. 252, t. **19** (Sylva, t. **112**).

ADDITIONS AND CORRECTIONS.

RANUNCULACEÆ.

Page

3. Dele all under **Anemone alpina.**

Under **A. cylindrica** insert: — Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 307.

Under **A. decapetala** insert: — Parry, Am. Naturalist, 9. 267.

Under *A. Caroliniana* insert: — Elliott, 2. 53. Eat. & Wr. 127. W. W. Smith, Journ. Ell. Soc. 1. 21.

4. After **A. Hepatica** insert: — *A. præcox.* Salisb. Prodr. 371.

Under *Hepatica triloba* insert: — Bigel. Fl. Bost. 222. Torrey, Compend. 225. Beck, Bot. 6. Tuckerman, Josselyn's Rarities, 76. W. W. Smith, l. c. 24.

A. Hepatica, var. *obtusa.* Muhl. Cat. 53.

H. triloba, var. *obtusa.* Barton, Comp. Fl. Phil. 2. 23. Darling. Fl. Cestr. 331.

5. Insert **A. occidentalis.** Watson, Proc. Am. Acad. 11. 121. Brew. & Wats. Bot. Calif. 1. 3.

A. alpina. Hook. Fl. Bor.-Am. 1. 5. Torr. & Gray, Fl. 1. 11. Hook. & Arn. Bot. Beechey, 120. Eat. & Wr. 126. Seem. Bot. Herald, 22. Newberry, Pac. R. Rep. 6. 66. Hook. f. Arct. Pl. 283 & 311, in part. Rothr. Fl. Alask. 442.

Pulsatilla alpina. Lawson, Ranunc. Canad. 23.

After *A. minima* insert:

A. nemorosa, var. *quinquefolia.* Torrey, Compend. 222. Beck, Bot. 5. Darling. Fl. Cestr. 332.

6. Under **A. Virginiana** insert: — Hill, Veg. Syst. 25, t. **44**, f. **3**. Bigel. Fl. Bost. 233. Barton, Comp. Fl. Phil. 2. 20. Elliott, 2. 54. Torrey, Compend. 223. Beck, Bot. 6. Darling. Fl. Cestr. 332. Eat. & Wr. 126. W. W. Smith, Journ. Ell. Soc. 1. 22.

Under *Cross-references* insert: — *alpina*; occidentalis.

Under **Aquilegia cærulea** insert: — Brew. & Wats. Bot. Calif. 1. 10. Rev. Hort. Belg. 1876, 221, t. (Belg. Hortic. 1877, 170). Garden, 12. 8.

Under **A. Canadensis** insert: — Barton, Elem. Bot. t. **34**, f. **1–5**. Persoon, 2. 85. Bigel. Fl. Bost. 219. Turpin, Dict. Sci. Nat. 2. 111, t. **115**. Barton f. Comp. Fl. Phil. 2. 12. Torrey, Compend. 218. Beck, Bot. 12. Darling. Fl. Cestr. 321. Eat. & Wr. 130. Garden, 12. 8.

7. Under **A. chrysantha** insert: — Regel, Gartenfl. 1877, t. **895**.

Under *A. leptoceras*, var. *chrysantha*, insert: — Fl. Serres, 1876, t. **2108**. Rev. Hort. Belg. 1876, 221, t.

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8. Under **Caltha palustris** insert: — Bigel. Fl. Bost. 221. Barton, Comp. Fl. Phil. 2. 22. Torrey, Compend. 224. Beck, Bot. 11. Darling. Fl. Cestr. 336. Eat. & Wr. 165.

9. After **Cimicifuga elata** insert: — *Macrotys fœtida*. Eat. & Wr. 311.

Under *C. fœtida* insert: — Persoon, 2. 85. Gray, Mem. Am. Acad. 6. 379.

Under **Clematis alpina** insert: — See syn. in Maxim. Bull. Acad. Petersb. 22. 224, as *Atragene*.

Under **C. crispa** insert: — W. W. Smith, Journ. Ell. Soc. 1. 16.

10. Insert **C. Fremonti**. Watson, Proc. Am. Acad. 10. 339 (Coult. Bot. Gazette, 2. 123).

11. Insert **C. pauciflora**. Nutt.; Torr. & Gray, Fl. 1. 9. Eat. & Wr. 200. Walp. Rep. 1. 7. Dietr. 3. 345. Brew. & Wats. Bot. Calif. 1. 3.

Under **C. verticillaris** insert: — Torrey, Compend. 222. Beck, Bot. 4. Brew. & Wats. Bot. Calif. 1. 3.

Under **C. Viorna** insert: — St. Hil. Fam. Nat. 1. 485. Torrey, Compend. 222. Beck, Bot. 4. Darling. Fl. Cestr. 335. Eat. & Wr. 190.

Under **C. Virginiana** insert: — Linn. Spec. 2 ed. 766. Bigel. Fl. Bost. 219. Barton, Comp. Fl. Phil. 2. 19. Torrey, Compend. 222. Beck, Bot. 4. Darling. l. c. Eat. & Wr. 190. W. W. Smith, Journ. Ell. Soc. 1. 18 & 41.

13. Insert **Delphinium** Consolida, Linn. Pursh, 372. Beck, Bot. 13. Torr. & Gray, Fl. 1. 30. Darling. Fl. Cestr. 3 ed. 7. Chapman, 10. Gray, Manual, 46.

Insert **D. flammeum**. Kellogg, Proc. Calif. Acad. 2. 22. (Cerros Islands.)

14. Insert **D. Wislizeni**. Engelm. in Wisliz. Rep. 22. Walp. Ann. 3. 812. (Northern Mexico.)

15. Under **Isopyrum occidentale** insert: — Brew. & Wats. Bot. Calif. 1. 9.

Insert **I. stipitatum**. Gray, Proc. Am. Acad. 12. 54.

Under **Myosurus aristatus** insert: — Parry, Am. Naturalist, 9. 268. Brew. & Wats. Bot. Calif. 1. 5.

Under **M. minimus** insert: — Eat. & Wr. 324. Brew. & Wats. l. c. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 308.

Under **Ranunculus abortivus** insert: — Persoon, 2. 103. Bigel. Fl. Bost. 225. Barton, Comp. Fl. Phil. 2. 24. Torrey, Compend. 226. Beck, Bot. 8. Darling. Fl. Cestr. 328. Eat. & Wr. 386. W. W. Smith, Journ. Ell. Soc. 1. 29.

After **R. abortivus**, var. **micranthus**, insert:

R. filiformis, var. *hispidus*. Schwein. in Long's Exped. 2, Appx. 114.

Under *R. micranthus* insert: — Eat. & Wr. 389 (as *Reseda micranthus*).

16. After **R. alismæfolius** & syn. insert:

Var. **alismellus**. Gray, Proc. Am. Acad. 7. 327 & 8. 372; Am. Journ. Sci. 3. 3. 149. Brew. & Wats. Bot. Calif. 1. 16.

After *R. Flammula* insert: — Barton, Comp. Fl. Phil. 2. 23. Bigel. Fl. Bost. 2 ed. 224. Torrey, Compend. 226. Beck, Bot. 7. Darling. Fl. Cestr. 327.

After **R. Andersoni** insert:

Var. **tenellus**. Watson, King's Rep. 5. 6. Parry, Am. Naturalist, 9. 142 & 207.

17. Under **R. aquatilis** dele Var. **Lobbii** & syn.

Under Var. **tricophyllus** insert: — Brew. & Wats. Bot. Calif. 1. 5.

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18. Insert **R.** CHILENSIS, DC. Hook. & Arn. Bot. Beechey, 134. Brew. & Wats. Bot. Calif. 1. 9.

Under **R. Cymbalaria** insert: — Brew. & Wats. l. c. 7.

Under *R. tridentatus* insert: — Griseb. Pl. Lorentz. 21, making it distinct.

19. Under **R. hebecarpus** insert: — Watson, Proc. Am. Acad. 11. 112. Brew. & Wats. Bot. Calif. 1. 8.

Var. **pusillus.** Brewer, Bot. Calif. 1. 9.

R. hederaceus. Linn. Spec. 2 ed. 781. See syn. in DC. Syst. 1. 233. — Schlecht. Animad. Ranunc. 1. 7. Elliott, 2. 56. Eat. & Wr. 358. W. W. Smith, Journ. Ell. Soc. 1. 36. Torrey, Pac. R. Rep. 4. 62.

R. hydrocharis Lobbii. Hiern in Seem. Journ. Bot. 9. 66, **t. 114.**

R. hederaceus, var. *Lobbii.* Brewer, Bot. Calif. 1. 5.

Under **R. hystriculus** insert: — Brew. & Wats. Bot. Calif. 1. 6.

20. Insert **R. Lemmoni.** Gray, Proc. Am. Acad. 10. 68. Brew. & Wats. l. c. 7.

Under **R. macranthus,** MURICATUS & **Nelsoni,** var., insert: — Brew. & Wats. Bot. Calif. 1. 8.

Under *R. oblongifolius* insert: — Eat. & Wr. 218. Smith, l. c. 28.

21. After *R. canus* insert: — *R. Californicus*, var. *canus.* Brewer, Bot. Calif. 1. 8.

Insert **R. oxynotus.** Gray, Proc. Am. Acad. 10. 68. Brew. & Wats. l. c. 7.

22. Under **R. Pennsylvanicus** insert: — Persoon, 2. 104. Barton, Comp. Fl. Phil. 2. 25. Bigel. Fl. Bost. 2 ed. 227. Torrey, Compend. 227. Beck, Bot. 10. Eat. & Wr. 386.

Under **R. pusillus** insert: — Torrey, Compend. 226. Beck, Bot. 8. Darling. Fl. Cestr. 328. Smith, l. c. 28.

Under **R. recurvatus** insert: — Persoon, 2. 105. Bigel. Fl. Bost. 3 ed. 242. Torrey, Compend. 227. Beck, Bot. 10. Darling. Fl. Cestr. 329. Eat. & Wr. 387. Smith, l. c. 31.

Under **R. repens** insert: — Bigel. Fl. Bost. 139. Barton, Comp. Fl. Phil. 2. 24. Torrey, Compend. 228. Beck, Bot. 9. Darling. l. c. Eat. & Wr. 387.

23. Under *R. hispidus* insert: — Persoon, 2. 105. Barton, l. c. Torrey, Compend. 227. Beck, Bot. 10. Eat. & Wr. 387. Smith, l. c. 31.

Under **R. rhomboideus** insert: — Eat. & Wr. 387. Brandegee, Fl. S. W. Col. 233.

Under **R. sceleratus** insert: — Bigel. Fl. Bost. 137. Barton, l. c. Torrey, Compend. 226. Beck, Bot. 8. Darling. l. c. Eat. & Wr. 386. Smith, l. c. 30.

24. Under Var. **Lindheimeri** insert: — Brewer, Bot. Calif. 1. 7.

25. Under **Thalictrum Cornuti** insert: — Persoon, 2. 100. Torrey, l. c. 223. Beck, Bot. 4. Darling. l. c. 334. Eat. & Wr. 449. Smith, l. c. 25.

26. Under **T. Fendleri** dele var. & syn. as indicated below.

Under **T. occidentale** insert: — Brew. & Wats. Bot. Calif. 1. 4.

T. polycarpum. Watson, Proc. Am. Acad. 13. —.

T. Fendleri, var. (?) *polycarpum.* Torrey, Pac. R. Rep. 4. 61.

T. Fendleri. Anderson, Cat. Pl. Nev. 117. Boland. Cat. 3. Brew. & Wats. Bot. Calif. 1. 4, in part.

27. Under **Trautvetteria palmata,** var. **occidentalis,** insert: — Gray, Mem. Am. Acad. 6. 379.

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27. After **Trollius laxus** & syn. insert:
Gaissenia verna. Raf. Med. Rep. 5. 352. Desv. in Journ. Bot. 2. 168.

After **Xanthorrhiza apiifolia** & syn. insert:
X. tinctoria. Woodhouse, Med. Rep. 5. 159, **t.**

DILLENIACEÆ.

Insert **Crossosoma Bigelovii.** Watson, l. c. 11. 122. Brew. & Wats. l. c.
C. Californicum. Torrey, Pac. R. Rep. 4. 63, **t. 1,** excl. f. 1, 2.

ANONACEÆ.

31. At bottom insert: — *Anona pendula.* Salisb. Prodr. 380.

32. Under **Anona glabra** insert: — Chapman, Coult. Bot. Gazette, 3. 2.

MENISPERMACEÆ.

Under **Menispermum Canadense** insert: — St. Hil. Fam. Nat. 2. 83. Persoon, 2. 627. Barton, Comp. Fl. Phil. 2. 199. Turpin, Dict. Sci. Nat. 30. 33, **t. 120.** Torrey, Compend. 326. Beck, Bot. 16. Bigel. Fl. Bost. 3 ed. 232. Eat. & Wr. 317. Agardh, Theor. Syst. **t. 20, f. 4.**

BERBERIDACEÆ.

33. Under **Achlys triphylla** insert: — Poir. in Lam. Ill. 3. 641. **Raf. New Flora,** 1. 51. Eat. & Wr. 113. Brew. & Wats. Bot. Calif. 1. 16.

Under **Berberis Aquifolium** insert: — Eat. & Wr. 156. **Hall,** Coult. Bot. Gaz. 2. 85. Garden, 5. 33.

34. Under **B. nervosa** insert: — Hall, l. c.

35. Under **Caulophyllum thalictroides** insert: — Lam. Ill. 3. 395, **t. 937.**

Under **Diphylleia cymosa** insert: — Persoon, 1. 387. **Lam.** Ill. 3. 695, **t. 937.** Eat. & Wr. 226.

Under **Jeffersonia diphylla** insert: — Muhl. Cat. 40. **Beck, Bot. 18. Eat.** & Wr. 287. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 309.

Under **Podophyllum peltatum** insert: — Walter, 153. **Barton, Elem. Bot. t. 18, f. 2.** St. Hil. Fam. Nat. 1. 493. Persoon, 2. 61. **Barton f. Comp. Fl.** Phil. 2. 9. Turpin, Dict. Sci. Nat. 42. 66, **t. 178.** Torrey, **Compend.** 217. Beck, Bot. 18. Darling. Fl. Cestr. 318. Porter, Coult. Bot. **Gaz. 2. 117.**

NYMPHÆACEÆ.

36. Under **Brasenia peltata** insert: — Barton, Comp. Fl. Phil. **2. 26. Brew. &** Wats. Bot. Calif. 1. 16. Muell. Pl. Indig. Vict. 1. 12.

Under *Hydropeltis purpurea* insert: — Persoon, 2. 107. **Lam. Ill. 3. 645, t. 967.** Bigel. Fl. Bost. 135. Turpin, Dict. Sci. Nat. **t. 81;** Ann. Nat. Hist. 1853, **t. 3.** Beck, Bot. 19. Eat. & Wr. 277.

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36. After *Brasenia nymphoides* insert:

Cabomba peltata. Muell. Fragm. Phyt. Austral. 10. 77.

Under **Nelumbium luteum** insert: — Turpin, Dict. Sci. Nat. 34. 356, **t. 180.** Torrey, Compend. 228. Beck, Bot. 19. Eat. & Wr. 327. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 309.

37. Under *Nelumbo lutea* insert: — Baill. in Adansonia, 10. 1, **t. 3.**

Under **Nuphar advena** dele syn. Newberry.

Under **N. polysepalum** insert: — Brew. & Wats. Bot. Calif. 1. 17.

N. advena. Newberry, Pac. R. Rep. 6. 67.

38. Insert **Nymphæa flava.** Leitner; Audubon, Birds, **t. 411.** Mrs. Mary Treat, in Harper's Magazine, 55. 365, **figs.** (as *N. lutea*). Chapman, Coult. Bot. Gaz. 3. 2.

SARRACENIACEÆ.

39. Under **Darlingtonia Californica** insert: — Edwards, Proc. Calif. Acad. 6. 161. Brew. Bot. Calif. 1. 17.

D. rediviva. Torrey, Proc. Am. Assoc. 4. 191.

Under **Sarracenia purpurea** insert: — Bigel. Fl. Bost. 213. Barton, Comp. Fl. Phil. 2. 10. Turpin, Dict. Sci. Nat. 47. 404, **t. 181.** Torrey, Compend. 217. Beck, Bot. 22. Eat. & Wr. 411. Tuckerman, Josselyn's Rar. 86, **fig.**

Sarazina gibbosa. Raf. Autikon Bot. 33.

PAPAVERACEÆ.

40. Under **Arctomecon Californicum** insert: — Parry, Am. Naturalist, 9. 139 & 268. Brew. & Wats. Bot. Calif. 1. 21. Gray, Proc. Am. Acad. 12. 52, **t. 2** (Garden, 11. 215, **fig.**).

41. Under **Argemone hispida** & **Mexicana** insert: — Brew. & Wats. l. c.

Insert **CANBYA candida.** Parry; Gray, Proc. Am. Acad. 12. 51, **t. 1** (Garden, 11. 215, **fig.**).

Insert **GLAUCIUM** LUTEUM, Scop. Eat. & Wr. 255. Gray, Manual, 60. Wood, Bot. & Fl. 31.

G. flavum. Gray, Manual, 1 ed. 27.

Papaver ARGEMONE, Linn. Gray, Manual, 59.

P. DUBIUM, Linn. Torr. & Gray, Fl. 1. 60. Eat. & Wr. 342. Darling. Fl. Cestr. 2 ed. 317. Chapman, 22. Gray, Manual, 59.

43. Under **Platystemon Californicus** insert: — Parry, Am. Naturalist, 9. 268. Brew. & Wats. Bot. Calif. 1. 19.

Under **Platystigma Californicum, lineare** & **Oreganum** insert: — Brew. & Wats. Bot. Calif. 1. 20.

Under **Romneya Coulteri** insert: — Masters, Gard. Chronicle, 2. 3. 280, **f. 55.** Brew. & Wats. Bot. Calif. 1. 20. The Garden, 11. 374. Fl. Mag. **t. 352.**

Under **Sanguinaria Canadensis** insert: — Walter, 153. Barton, Elem. Bot. **t. 40.** St. Hil. Fam. Nat. 1. 495. Bigel. Fl. Bost. 131. Barton f. Veg. Mat. Med. 1, **t. 2**; Comp. Fl. Phil. 2. 8. Torrey, Compend. 217. Beck, Bot. 21. Darling. Fl. Cestr. 317. Eat. & Wr. 410.

FUMARIACEÆ.

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44. Under **Corydalis aurea**, var., insert: — Brew. & Wats. Bot. Calif. 1. 24.

Under **C. Caseana** insert: — Brandegee, Fl. S. W. Col. 233. Brew. & Wats. l. c.

45. Under **C. Scouleri** insert: — Brew. & Wats. Bot. Calif. 1. 24.

46. Under **Dicentra formosa** insert: — Brew. & Wats. Bot. Calif. 1. 24.

CRUCIFERÆ.

47. Under **Alyssum** CALYCINUM insert: — Brew. & Wats. Bot. Calif. 1. 27.

Insert **A.** MARITIMUM, Linn. Brew. & Wats. l. c.

Under **Arabis arcuata, blepharophylla** & **canescens** insert: — Brew. & Wats. Bot. Calif. 1. 32 & 33.

Insert **A. Breweri.** Watson, Proc. Am. Acad. 11. 123. Brew. & Wats. l. c.

48. Under **A. Drummondii** dele Var. **alpina** & syn.

Under **A. hirsuta** insert: — Brew. & Wats. Bot. Calif. 1. 32.

Under **A. Holboellii** insert: — Brew. & Wats. l. c. 33. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 314.

After *A. heteromalla* insert: — *A. lilacina.* Schrad. in Ind. Sem. Goett. 1832, 1. Regel, Descr. Pl. Nov. fasc. 5. 51.

49. After *Turritis Grahami* insert: — *A. Turczaninowii.* Ledeb. Fl. Ross. 1. 123; fide Regel, l. c.

Under **A. longirostris** insert: — Parry, Am. Naturalist, 9. 268. Brew. & Wats. Bot. Calif. 1. 31.

Under **A. lyrata** insert: — Crantz, Class. Crucif. 125. Poir. Suppl. 1. 414. Barton, Comp. Fl. Phil. 2. 56. Torrey, Compend. 250. Beck, Bot. 30.
Subularia alpina. Eat. & Wr. 445.

After *Cardamine Virginica* insert: — *Arabis* —— ? Lam. Dict. 2. 185.

Insert **A. Lyalli.** Watson, l. c. 11. 122. Brew. & Wats. Bot. Calif. 1. 32.
? *A. microphylla.* Nutt.; Torr. & Gray, Fl. 1. 82. Walp. Rep. 1. 133. Eat. & Wr. 131. Dietr. Syn. 3. 693.
A. Drummondii. Watson, King's Rep. 5. 17.
A. Drummondii, var. *alpina.* Watson, l. c. Porter, Hayd. Rep. 1871, 478; Fl. Col. 6. Coulter, Hayd. Rep. 760.

After *Sisymbrium arabidoides* insert: — *Sisymbrium lyratum.* Eat. & Wr. 430.

Under **A. perfoliata** insert: — Brew. & Wats. Bot. Calif. 1. 31.

Under *Turritis glabra* insert: — Muell. Pl. Indig. Vict. 1. 33.

50. Under **A. petræa** insert: — Macoun & Gibson, Trans. Edinb. 12. 313.

Under **A. platysperma** & **spathulata** insert: — Brew. & Wats. l. c. 32.

Insert **A. repanda.** Watson, Proc. Am. Acad. 11. 122. Brew. & Wats. l. c.

Under **Barbarea vulgaris** insert: — Barton, Comp. Fl. Phil. 2. 54. Torrey, Compend. 251. Beck, Bot. 29. Eat. & Wr. 154. Muell. Pl. Indig. Vict. 1. 32. Brew. & Wats. Bot. Calif. 1. 40.

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51. Under **Biscutella Californica** insert: — Brew. & Wats. Bot. Calif. 1. 48.

Under **B. Wislizeni** insert: — Parry, Am. Naturalist, 9. 268. Brandegee, Fl. S. W. Col. 233. Brew. & Wats. l. c.

Under **Brassica** CAMPESTRIS, NIGRA & SINAPISTRUM insert: — Brew. & Wats. Bot. Calif. 1. 39.

52. After **Cakile Americana** insert:

Rapistrum Cakile. Crantz, Class. Crucif. 106, in part.
Bunias Americana. Raf. Med. Bot. 2. 202.

Under **Capsella divaricata** insert: — Parry, l. c. Brew. & Wats. l. c. 44.

Under **Cardamine angulata** insert: — Eat. & Wr. 169. Watson, Proc. Am. Acad. 10. 340.

Under **C. bellidifolia** insert: — Bigel. Fl. Bost. 2 ed. 252. Eat. & Wr. 169. Brew. & Wats. Bot. Calif. 1. 31.

Insert **C. Gambelii.** Watson, l. c. 11. 147. Brew. & Wats. l. c. 30.

Under **C. hirsuta** & var., **C. oligosperma** & **paucisecta** insert: — Brew. & Wats. l. c.

After **C. paucisecta** insert:

Dentaria Californica & *integrifolia.* Nutt.; Torr. & Gray, Fl. 1. 88. Walp. Rep. 1. 138. Dietr. 3. 700. Eat. & Wr. 222.

54. Under **Caulanthus Coulteri** & **crassicaulis** insert: — Brew. & Wats. Bot. Calif. 1. 36.

Under **Cheiranthus asper** & **Menziesii** insert: — Brew. & Wats. l. c. 35.

57. Under **Dentaria macrocarpa** insert: — Eat. & Wr. 222. Brew. & Wats. Bot. Calif. 1. 30.

59. Under **Draba aurea** insert: — Eat. & Wr. 228. Brew. & Wats. l. c. 28.

Under Var. **stylosa** insert: — Brandegee, Fl. S. W. Col. 233.

Under **D. Caroliniana** insert: — Torrey, Compend. 247. Eat. & Wr. 227. Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 315.

Under **D. Douglasii** & **eurycarpa** insert: — Brew. & Wats. l. c. 29.

62. Insert **D. stenoloba.** Ledeb. Fl. Ross. 1. 154. Walp. Rep. 1. 150. Dietr. 3. 651. Rothr. Fl. Alask. 443. Brew. & Wats. Bot. Calif. 1. 28.
D. hirta, var. *siliquosa.* Cham. & Schlecht. in Linnæa, 1. 24.
D. nemorosa, var. *lutea.* Watson, King's Rep. 5. 22.
D. nemorosa, var. *crassifolia.* Rothr. Pl. Wheeler, 34.

Under *Cross-references.* — Dele "*crassifolia;* androsacea" and "*stenoloba;* hirta:" — insert "*nemorosa;* montana:" — read "*Johannis;* crassifolia, stellata" and "*oligosperma;* alpina."

63. Under **Erysimum asperum** insert: — Brew. & Wats. Bot. Calif. 1. 39.

After *E. elatum* insert:

Var. **pumilum.** Watson, King's Rep. 5. 24, excl. syn. Brew. & Wats. l. c.

64. Under **Lepidium alyssoides** insert: — Brew. & Wats. Bot. Calif. 1. 47.

Under **L. dictyotum** insert: — Brew. & Wats. l. c. 45.

Var. (?) **acutidens.** Gray, Proc. Am. Acad. 12. 54.

Under **L. flavum** insert: — Brew. & Wats. l. c. 46.

Under **L. Fremonti** insert: — Parry, Am. Naturalist, 9. 268. Brew. & Wats. l. c. 47.

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64. After **L. integrifolium** insert:

Var. **heterophyllum.** Watson, Am. Naturalist, 9. 268.

L. montanum, var. (?) *alpinum.* Watson, King's Rep. 5. 29.

Under **L. intermedium** insert: — Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 316. Brew. & Wats. l. c. 47.

L. Menziesii, var. β. Hook. Fl. Bor.-Am. 1. 68.

L. Menziesii. Gray, Proc. Am. Acad. 8. 377.

Under **L. montanum** insert: — Parry, l. c. 268. Brew. & Wats. l. c. 47.

Insert **Lepidium Grœnlandicum.** Hornem.; Lange, Pl. Groenl. 130.

L. alpinum. Muell. Fl. Dan. 4. 5, t. **569.**

65. After **L. nitidum** insert: — *L. Menziesii.* Torr. & Gray, Fl. 1. 115, in part.

After *Dileptium diffusum* insert:

? *Discovium Ohioense.* Raf. Journ. Phys. 1819, 96; Autikon Bot. 17. DC. Syst. 2. 700; Prodr. 1. 236. Don, Mill. 1. 181. Torr. & Gray, Fl. 1. 120. Dietr. 3. 643.

Semetum ramosum. Raf. Autikon Bot. 17.

? *L. Menziesii.* Torrey, Bot. Wilkes, 233.

Under **L. Wrightii** insert: — Parry, l. c. Brew. & Wats. Bot. Calif. 1. 46.

Under **Lyrocarpa Coulteri** insert: — Brew. & Wats. Bot. Calif. 1. 44.

Insert **L. Palmeri.** Watson, Proc. Am. Acad. 11. 123. Brew. & Wats. l. c.

Under **Nasturtium** ARMORACIA insert: — Brew. & Wats. Bot. Calif. 1. 43.

Under **N. curvisiliqua** insert: — Brew. & Wats. l. c. 42.

66. Under **N.** OFFICINALE insert: — Torrey, Compend. 251. Eat. & Wr. 326. Brew. & Wats. l. c. 43.

Erysimum Nasturtium. Eat. Man. 7 ed.

Under **N. palustre** & var. **hispidum** insert: — Brew. & Wats. l. c. 42.

67. Under **N. sinuatum** insert: — Brew. & Wats. l. c. 43.

Insert **N. trachycarpum.** Gray in Brandegee, Fl. S. W. Col. 233; Proc. Am. Acad. 12. 54.

Under **Parrya nudicaulis** insert: — Regel, Descr. Pl. Nov. fasc. 5. 18, with syn., including both *P. arctica* & *macrocarpa.*

68. Under **Physaria didymocarpa** insert: — Brew. & Wats. l. c. 47.

Under *Vesicaria didymocarpa* insert: — Benth. & Hook. Gen. Pl. 1. 73.

Under **P. Newberryi** insert: — Parry, Am. Naturalist, 9. 268.

Under **Platyspermum scapigerum** insert: — Brew. & Wats. Bot. Calif. 1. 27.

Under **Raphanus** RAPHANISTRUM & SATIVUS insert: — Brew. & Wats. l. c. 49.

Under **Senebiera** DIDYMA insert: — Brew. & Wats. l. c. 48.

Under **Sisymbrium canescens** insert: — Griseb. Pl. Lorentz. 23. Watson, Proc. Am. Acad. 11. 113. Brew. & Wats. Bot. Calif. 1. 40.

69. After *S. brachycarpon* insert:

S. canescens, var. *appendiculatum.* Griseb. Pl. Lorentz. 23.

70. Under **S. reflexum** insert: — Watson, Proc. Am. Acad. 11. 113. Brew. & Wats. l. c. 41.

After *S. deflexum* insert:

Erysimum retrofractum. Torrey, Bot. Wilkes, 230. Gray, same.

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71. Insert **Smelowskia** (?) **Fremonti.** Watson, Proc. Am. Acad. 11. 123. Brew. & Wats. Bot. Calif. 1. 42.

Under **Stanleya pinnatifida** & **viridiflora** insert: — Brew. & Wats. l. c. 38.

After *Cleome pinnata* insert:
Podolobus pinnatifidus. Raf. 1817; Sylv. Tellur. 113.

Under **Streptanthus Breweri, flavescens, glandulosus, heterophyllus & hispidus** insert: — Brew. & Wats. Bot. Calif. 1. 35.

Under **S. cordatus** insert: — Parry, Am. Naturalist, 9. 268. Brandegee, Fl. S. W. Col. 233. Brew. & Wats. l. c. 34.

72. After *S. obtusifolius* insert: — *S. ovalifolius.* Eat. & Wr. 444.

Under **S. polygaloides, repandus** & **tortuosus** insert: — Brew. & Wats. l. c. 34.

Under **Subularia aquatica** insert: — Torrey, Compend. 248. Eat. & Wr. 446. Brew. & Wats. Bot. Calif. 1. 43.

Insert **Thelypodium ambiguum.** Watson, Proc. Am. Acad. 13. —
Streptanthus sagittatus. Gray, Ives' Rep. 6.
T. sagittatum. Watson, King's Rep. 5. 25, in part.

T. Cooperi. Watson, Proc. Am. Acad. 12. 246.
T. —— ? Brew. & Wats. Bot. Calif. 1. 38.

Under **T. brachycarpum, flavescens** & **laciniatum** insert: — Brew. & Wats. Bot. Calif. 1. 37.

Under **T. integrifolium** insert: — Brandegee, Fl. S. W. Col. 233 (var. ?). Brew. & Wats. l. c.

73. Under **T. longifolium** & **Nuttallii** insert: — Brew. & Wats. l. c.

Under **Thlaspi alpestre** insert: — Brew. & Wats. Bot. Calif. 1. 45.

74. Under **Thysanocarpus curvipes** insert: — Parry, Am. Naturalist, 9. 268. Brew. & Wats. Bot. Calif. 1. 48.

Insert **T. erectus.** Watson, l. c. 11. 113 & 124. Brew. & Wats. l. c. 49.

After **T. laciniatus** insert:
Var. **crenatus.** Brewer, Bot. Calif. 1. 49.

Under **T. laciniatus, pusillus** & **radians** insert: — Brew. & Wats. l. c.

Under **Tropidocarpum gracile** insert: — Brew. & Wats. Bot. Calif. 1. 44.

75. Insert **Vesicaria calycina.** Gray in herb.
Nasturtium calycinum. Engelm. Pl. Upp. Miss. 184.

Under **V. montana** insert: — Brew. & Wats. Bot. Calif. 1. 43.

CAPPARIDACEÆ.

76. Under **Atamisquea emarginata** insert: — Brew. & Wats. Bot. Calif. 1. 50.

After **Cleome integrifolia** & syn. insert:
Pericla imbricata & *Atalanta serrulata.* Raf. Sylv. Tellur. 113.

Under **C. lutea, platycarpa** & **sparsifolia** insert: — Brew. & Wats. l. c. 51.

77. After *Peritome aurea* insert: — *Isexine aurea.* Raf. Sylv. Tellur. 112.

Under **C. Sonoræ** insert: — Brandegee, Fl. S. W. Col. 233. Brew. & Wats. Bot. Calif. 1. 51.

Under **Cleomella longipes, obtusifolia, parviflora** & **plocasperma** insert: — Brew. & Wats. Bot. Calif. 1. 52.

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77. After **C. longipes** insert:

Var. (?) **grandiflora.** Watson, King's Rep. 5. 33. Brew. & Wats. l. c.

Insert **C. oocarpa.** Gray, Proc. Am. Acad. 11. 72. Brandegee, l. c. 233. Brew. & Wats. l. c.

After *Cyrbasium erosum* insert: — *Dispara filiformis.* Raf. Sylv. Tellur. 113.

Under **Isomeris arborea** insert: — Brew. & Wats. Bot. Calif. 1. 50.

Under **Oxystylis lutea** insert: — Brew. & Wats. Bot. Calif. 1. 53.

78. After *Cleome dodecandra* insert:

Jacksonia trifoliata. Raf. Med. Bot. 5. 354. Desv. in Journ. Bot. 2. 170.

RESEDACEÆ.

Insert **RESEDA** LUTEOLA, Linn. Torr. & Gray, Fl. 1. 125. Gray, Manual, 76. Brew. & Wats. Bot. Calif. 1. 53.

CISTACEÆ.

After *Cistus Canadensis* insert:

Menandra Gronovii. Forster, Cat. Pl. N. Am. 27.

79. Under **Helianthèmum scoparium** insert: — Brew. & Wats. Bot. Calif. 1. 54.

80. After **Lechea tenuifolia** insert:

? *L. juncifolia.* Walter, 83; fide Elliott. Gmelin, Syst. 1. 209.

81. Before **L. Torreyi** insert: — *Menandra ternata.* Forster, Cat. Pl. N. Am. 23.

VIOLACEÆ.

Insert **Viola aurea.** Kellogg, Proc. Calif. Acad. 2. 185, f. 54. Brew. & Wats. Bot. Calif. 1. 56.

V. præmorsa. Hook. & Arn. Bot. Beechey, 325. Benth. Pl. Hartw. 298. Durand, Pl. Pratten. 82.

V. Nuttallii. Benth. l. c. Anderson, Cat. Pl. Nev. 118.

V. pedunculata. Torrey, Pac. R. Rep. 4. 68, in part. Gray, Proc. Bost. Soc. 7. 146.

V. Nuttallii, var. *præmorsa.* Watson, King's Rep. 5. 35.

Var. **venosa.** Watson, Bot. Calif. 1. 56.

V. purpurea. Kellogg, l. c. 1. 56.

V. Nuttallii, var. (?) *venosa.* Watson, King's Rep. 5. 35 & 416. Coulter, Hayd. Rep. 1872, 762 ?

Under **V. Beckwithii** insert: — Brew. & Wats. Bot. Calif. 1. 58.

Under **V. biflora** insert: — See syn. in Maxim. Bull. Acad. Petersb. 23. 334 (Mel. Biol. 9. 749).

Under **V. blanda** insert: — Brew. & Wats. l. c. 55. Maxim. l. c. 23. 322 (Mel. Biol. 9. 732), giving as syn. *V. brachyceras*, Turcz. Fl. Baic. 1. 183.

82. Under **V. canina**, var. **sylvestris**, insert: — Brew. & Wats. Bot. Calif. 1. 55. Kept distinct (as *V. sylvestris*, Kit.) by Maxim. l. c. 330 (Mel. Biol. 9. 743).

Under Var. **adunca** insert: — Brew. & Wats. l. c.

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83. Before **V. longipes** insert:

Var. oxyceras. Watson, Bot. Calif. 1. 56.

Var. longipes. Watson, l. c.

V. adunca. Hook. Fl. Bor.-Am. 1. 79, in part.

Under **V. chrysantha** insert: — Brew. & Wats. Bot. Calif. 1. 58.

Under **V. cucullata** insert: — Brew. & Wats. l. c. 55.

84. Under **V. glabella** insert: — Brew. & Wats. Bot. Calif. 1. 57. Maxim. l. c. 336 (Mel. Biol. 9. 752).

After **V. glabella** & syn. insert:

V. pubescens, var. *scabriuscula.* Gray, Manual, 79. Distinct, fide Maxim. l. c.

87. Under **V. sarmentosa** & **Sheltoni** insert: — Brew. & Wats. l. c. 58.

Under **V. Selkirkii** insert: — Maxim. l. c. 321 (Mel. Biol. 9. 730), with syn.

88. Under **V.** TRICOLOR insert: — Brew. & Wats. Bot. Calif. 1. 56.

After *V. tenella* insert: — *V. arvensis*, DC. Elliott, 1. 302.

In *Cross-references* insert:

V. montana; Beckwithii.

Nuttallii, pedunculata & præmorsa; aurea.

POLYGALACEÆ.

89. Under **Amoreuxia**, each species, insert: — Walp. Ann. 4. 341.

Under **Krameria canescens** & **lanceolata** insert: — Brew. & Wats. Bot. Calif. 1. 60.

Under **K. parvifolia** insert: — Parry, Am. Naturalist, 9. 269. Brew. & Wats. l. c.

Insert **Polygala acanthoclada.** Gray, Proc. Am. Acad. 11. 73. Brandegee, Fl. S. W. Col. 234. Brew. & Wats. Bot. Calif. 1. 59.

90. Insert **P. Californica.** Nutt.; Torr. & Gray, Fl. 1. 671. Brew. & Wats. l. c.

P. Nutkana. Torr. & Gray, Fl. 1. 671. Torrey, Bot. Wilkes, 265.

P. cucullata. Newberry, Pac. R. Rep. 6. 70. Durand, Pl. Pratten. 81, excl. descr.

P. cornuta. Kellogg, Proc. Calif. Acad. 1. 61.

P. cucullata. Benth. Pl. Hartw. 299. Walp. Ann. 2. 681. Torrey, Pac. R. Rep. 4. 6 & 7. 9. Brew. & Wats. l. c.

P. Nutkana. Torrey, Mex. Bound. 49, t. 12. Boland. Cat. 8.

93. Under **P. subspinosa** insert: — Parry, l. c. 269. Brew. & Wats. l. c.

Under **P. Xanti** insert: — Brew. & Wats. l. c.

Under *Cross-references* insert: — "*Nutkana;* ovalifolia:" — and dele "*cornuta;* Nutkana" & "*cucullata;* Nutkana."

FRANKENIACEÆ.

94. Under **Frankenia grandiflora** & **Jamesii** insert: — Brew. & Wats. Bot. Calif. 1. 60 & 61.

Insert **F. Palmeri.** Watson, Proc. Am. Acad. 11. 124. Brew. & Wats. Bot. Calif. 1. 61. (Lower California.)

CARYOPHYLLACEÆ.

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Under **Alsine**, *Cross-references*, insert: — *A. Sagina*; Bartonia tenella.

95. Under **Arenaria brevifolia** insert: — Gray, Proc. Am. Acad. 11. 72.

Under **A. Californica, capillaris & Franklinii** insert. — Brew. & Wats. Bot. Calif. 1. 69.

After **A. congesta** & syn. insert:
Var. **subcongesta.** Watson, Bot. Calif. 1. 69.
A. Fendleri, var. *subcongesta.* Watson, King's Rep. 5. 40; Pl. Wheeler, 6. Porter, Fl. Col. 13. Rothr. Pl. Wheeler, 35.

96. Under *A. diffusa* insert: — Curtis, Bot. N. Car. 125. Gray, Bot. Wilkes Expl. Exp. 1. 115.

Under **A. lateriflora & macrophylla** insert: — Brew. & Wats. l. c. 70.

98. Under **A. pungens** insert: — Brandegee, Fl. S. W. Col. 233. Brew. & Wats. Bot. Calif. 1. 69.

Under **A. tenella** insert: — Brew. & Wats. l. c.
Greniera tenella. Gay, Ann. Sci. Nat. 3. 4. 27.

100. Under **Cerastium arvense & nutans** insert: — Brew. & Wats. l. c. 67.

101. Under **C. pilosum** insert: — Brew. & Wats. l. c. 67.

Under *C. stellarioides* insert: — Moç. & Sesse, Icon. Ined. t. 54.

Under *C. oblongifolium* insert: — Boland. Cat. 6.

102. Under **Dianthus** ARMERIA dele *D. Carolinana*, Walter, &c. (which is *Dodecatheon Meadia*).

After *D. armerioides* insert: — *Alocion armerioides.* Raf. Autikon Bot. 20.

103. Under **Lepigonum macrothecum & medium** insert: — Brew. & Wats. Bot. Calif. 1. 71.

Under **L. rubrum** insert: — See syn. in Muell. Pl. Indig. Vict. 1. 207, under *Spergularia.*

104. Under **Lœflingia squarrosa** insert: — Brew. & Wats. Bot. Calif. 1. 72.

Under **Lychnis affinis, alpina, apetala** & var., insert: — Watson, Proc. Am. Acad. 12. 246 & 247.

105. Under **Polycarpon depressum** & TETRAPHYLLUM insert: — Brew. & Wats. Bot. Calif. 1. 71.

Under **Sagina apetala** & *procumbens* insert: — Muell. l. c. 208 & 209.

106. Under **S. Linnæi & occidentalis** insert: — Brew. & Wats. l. c. 70.

107. Under **Silene antirrhina** insert: — Watson, Proc. Am. Acad. 10. 340 & 11. 113. Brandegee, Fl. S. W. Col. 233. Brew. & Wats. Bot. Calif. 1. 63.
Ebraxis virgata. Raf. Autikon Bot. 20.

Insert **S. Grayi.** Watson, Proc. Am. Acad. 13. —.

108. Under **S. laciniata** insert: — Poir. Dict. 7. 184. Persoon, 1. 498. Watson, l. c. 10. 341, excl. var. *Californica.* Brew. & Wats. l. c. 64. Garden, 11. 12.

Under Var. **Greggii** insert: — Watson, l. c.

Under **S. Lemmoni & Lyallii** insert: — Brew. & Wats. l. c.

Under **S. Menziesii** insert: — Watson, l. c. Brew. & Wats. l. c.

109. After **S.** NOCTURNA insert: — ? *S. furcata.* Raf. Autikon Bot. 28.

Under **S. occidentalis** insert: — Brew. & Wats. l. c. 64.

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109. **S. Oregana.** Watson, l. c. 10. 343. Brew. & Wats. l. c. 65.

S. Palmeri. Watson, l. c. 11. 124. Brew. & Wats. l. c.

S. pectinata. Watson, l. c. 10. 344. Brew. & Wats. l. c.

Under **S. Scouleri** insert: — Watson, l. c. 10. 342. Brew. & Wats. l. c. 66.

S. Spaldingii. Watson, l. c. 10. 344. Brew. & Wats. l. c.

110. Under *Cucubalus stellatus* insert: — Barton, Elém. Bot. **t. 17, f. 3.** Barton f. Comp. Fl. Phil. 1. 211. James, Long's Exp. 1. 317.

Insert **S. Thurberi.** Watson, Proc. Am. Acad. 10. 343.

Under **S. verecunda** insert: — Brew. & Wats. l. c. 65.

S. Nicæensis. Cham. & Schlecht. in Linnæa, 1. 41.

S. Drummondii. Torr. & Gray, Fl. 1. 191, in part. Hook. & Arn. Bot. Beechey, 135. Torrey, Pac. R. Rep. 4. 69, in part. Boland. Cat. 6.

Elisanthe Chamissonis. Ruprecht, Fl. Cauc. 1. 201.

S. Engelmanni, var. *Behrii.* Rohrb. in Linn. 36. 264.

Under **S. Wrightii** insert: — Watson, Proc. Am. Acad. 10. 341.

Under *Cross-references* insert:

S. rubicunda; Pennsylvanica.

—— *?;* laciniata, Lychnis Californica.

Under **Spergula** ARVENSIS insert: — Brew. & Wats. Bot. Calif. 1. 71.

111. Under **Stellaria borealis** insert: — Brew. & Wats. l. c. 68.

Under **S. humifusa** insert: — Greville, Mem. Soc. Wern. 3. 429.

112. Under **S. Jamesii** & **longipes** insert: — Brew. & Wats. l. c.

After **S. longipes** insert: — ? *S. graminea.* Greville, Mem. Soc. Wern. 3. 429.

113. Under **S.** MEDIA insert: — Brew. & Wats. Bot. Calif. 1. 67.

After *Alsine media* insert:

? *Polycarpon uniflorum.* Walter, 83. Poir. Dict. 5. 482.

Under **S. nitens** insert: — Watson, l. c. 11. 113. Brew. & Wats. l. c. 67.

114. Under *S. gracilis* insert: — Macoun & Gibson, Trans. Edinb. 12. 318.

Under **S. umbellata** insert: — Brew. & Wats. l. c.

PARONYCHIEÆ.

Under **Achyronychia Cooperi** insert: — Brew. & Wats. l. c. 73.

Under **Anychia dichotoma** insert: — Redfield, Torr. Bull. 6. 61.

115. Under **Pentacæna ramosissima** insert: — Brew. & Wats. Bot. Calif. 1. 72.

Under *P. polycnemoides* insert: — Griseb. Pl. Lorentz. 30.

PORTULACACEÆ.

117. Under **Calyptridium monandrum** & **roseum** insert: — Brew. & Wats. Bot. Calif. 1. 77.

Insert **Claytonia bulbifera.** Gray, Proc. Am. Acad. 12. 54.

Under **C. Chamissonis** insert: — Brew. & Wats. l. c. 76.

118. Under **C. parvifolia** insert: — Brew. & Wats. l. c.

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118. Under **C. perfoliata** insert: — Watson, l. c. 11. 113. Brew. & Wats. l. c. 75.

Under Var. **parviflora** insert: — Brew. & Wats. l. c.

Under *C. parviflora* insert: — Gray, Proc. Am. Acad. 12. 54.

119. Under **C. Sibirica** & **umbellata** insert: — Brew. & Wats. l. c. 76.

Under *C. alsinoides* & **Virginica** insert: — Fenzl, Ledeb. Fl. Ross. 2. 150 & 146.

Insert **C. triphylla.** Watson, l. c. 10. 345. Brew. & Wats. l. c. 77.

120. Under **Lewisia rediviva** insert: —Brew. & Wats. Bot. Calif. 1. 79.

Under **Montia fontana** insert: — Brew. & Wats. l. c. 77.

Under **Portulaca** OLERACEA & **pilosa** insert: — Brew. & Wats. l. c. 74.

121. Under **P. retusa** insert: — Brandegee, Fl. S. W. Col. 233. Brew. & Wats. l. c.

Under **Spraguea paniculata** & **umbellata** insert: — Brew. & Wats. l. c. 78.

Under **Talinum spinescens** insert: — Brew. & Wats. Bot. Calif. 1. 74.

Under *Phemeranthus teretifolius* insert: — Raf. Med. Rep. 5. 351; Desv. Journ. Bot. 2. 167.

TAMARISCINEÆ.

Under **Fouquiera formosa** insert: — Don, Mill. 8. 70. Brew. & Wats. Bot. Calif. 1. 79.

122. Under **F. spinosa** & **splendens** insert: — Brew. & Wats. l. c.

Insert **TAMARIX** GALLICA, Linn. Joor, Torr. Bull. 6. 166.

ELATINEÆ.

Insert **Elatine brachysperma.** Gray, Proc. Am. Acad. 13. —.

E. Americana. Gray, Hall's Pl. Texas, 5.

E. Californica. Gray, l. c.

E. triandra. Gray, l. c.

E. Americana. Gray, Proc. Acad. Philad. 1863, 58.

Under **Bergia Texana** insert: — Brew. & Wats. l. c. 80.

HYPERICACEÆ.

123. After **Ascyrum Crux-Andreæ** insert: — *Hypericum parviflorum.* Salisb. Prodr. 369.

Dele **A. microsepalum.**

124. After **Hypericum adpressum** insert: — *H.* ——? Barton, Prodr. Fl. Phil. 74.

Under **H. anagalloides** insert: — Brew. & Wats. Bot. Calif. 1. 81.

125. Under **H. concinnum** insert: — Brew. & Wats. l. c.

127. Under **H. Kalmianum** insert: — Barton, Elem. Bot. **t. 19, f. 2 (fl.).**

Insert **H. microsepalum.** Gray, in herb.

Isophyllum Drummondii. Spach, Ann. Sci. Nat. 2. 5. 367; Hist. Veg. 5. 433.

Ascyrum microsepalum. Torr. & Gray, Fl. 1. 157; Eat. & Wr. 140. Dietr. 4. 1239. Chapman, 39. Wood, Cl.-Book, 247; Bot. & Fl. 48.

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128. **Transpose H. setosum** and **Sarothra**, with syn., and insert **H. Scouleri** from page 126.

129. Under *Cross-references* insert: — *formosum*; Scouleri.

130. After **Stuartia pentagyna** insert: — *Cavanilla florida.* Salisb. Prodr. 385.

131. Under **S. Virginica** insert: — Gard. Chron. 2. 8. 433, **f. 86.**

After *S. Malachodendron* insert: — *S. nobilis.* Salisb. Prodr. 386.

MALVACEÆ.

After **Abutilon** AVICENNÆ insert: — *A. mollissimum.* Raf. New Flora, 1. 39.

Under **A. crispum** & **Palmeri** insert: — Brew. & Wats. Bot. Calif. 1. 87.

After *Sida amplexicaulis* insert: — *Sida gracilis.* Salisb. Prodr. 382.

After *Sida lignosa* insert: — *A. decarpum.* Raf. New Flora, 1. 40.

Insert **A. Newberryi.** Watson, Proc. Am. Acad. 11. 125. Brew. & Wats. l. c. *Sphæralcea incana.* Gray, Ives' Rep. 8.

133. Under **Calirrhoe digitata** insert: — Thompson, Garden, 12. 69.

After *Nuttallia pedata* insert: — *Sida digitata* & *pedata.* Spreng. Syst. 4². 259.

134. Insert **Fugosia heterophylla.** Spach, Hist. Veg. 3. 397. Hook. Bot. Mag. **t. 4218.** Chapman, Coult. Bot. Gazette, 3. 3.

Redoutea heterophylla. Vent. Hort. Cels, **t. 11.** HBK. Nov. Gen. 5. 203. DC. Prodr. 1. 457. Spreng. Syst. 3. 309.

Under **Gossypium Davidsoni** insert: — Brew. & Wats. Bot. Calif. 1. 82.

After *Malvaviscus Floridanus* insert: — *Achania Floridana.* Raf. New Flora, 1. 49.

Under **Hibiscus Californicus** & **denudatus** insert: — Brew. & Wats. l. c. 87.

After **H. coccineus** & syn. insert:

Var. **integrifolius.** Chapman, Coult. Bot. Gazette, 3. 3.

136. Under **Malva** BOREALIS insert: — Watson, l. c. 113. Brew. & Wats. l. c. 83. *M. rotundifolia.* Hook. & Arn. Bot. Beechey, 326. Boland. Cat. 7.

Insert **M.** ALCEA, Linn. Gray, Manual, 100.

M. CRISPA, Linn. Gray, Manual, 99.

137. Insert **M.** PARVIFLORA, Linn. Chapman, Coult. Bot. Gazette, 3. 2.

138. Under **M. exile** insert: — Brandegee, Bot. S. W. Colorado, 234.

Under **M. marrubioides** & **Munroanum** insert: — Brew. & Wats. l. c.

After *Sphæralcea Munroana* insert: — *M. Thurberi.* Anderson, Cat. 118.

Insert **M. Palmeri.** Watson, Proc. Am. Acad. 12. 250.

Under **M. spicatum** insert: — Chapman, Coult. Bot. Gazette, 3. 2.

140. Insert **Pavonia** SPINIFEX, Linn. Leggett, Torr. Bull. 5. 27. Chapman, Coult. Bot. Gazette, 3. 2.

Insert **Sida** CORDIFOLIA, Linn. Chapman, Coult. Bot. Gazette, 3. 2.

Under **S. hederacea** insert: — Brew. & Wats. Bot. Calif. 1. 86.

142. Under **Sidalcea diploscypha, Hartwegi, malachroides** & **malvæflora** insert: — Brew. & Wats. Bot. Calif. 1. 84.

After *Malva malachroides* insert: — *S. vitifolia.* Gray, Proc. Am. Acad. 7. 332. Boland. Cat. 7.

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143. Under **Sphæralcea angustifolia** insert: — Brew. & Wats. l. c. 86.

144. Under **S. Lindheimeri** insert: — Brew. & Wats. l. c.

Insert **S. sulphurea.** Watson, Proc. Am. Acad. 11. 113 & 125. Brew. & Wats. Bot. Calif. 1. 86. (Guadalupe Is.)

URENA RIBESIA, Smith? Chapman, Coult. Bot. Gazette, 3. 3.

STERCULIACEÆ.

Under **Fremontia Californica** insert: — Brew. & Wats. Bot. Calif. 1. 88.

Insert **Melochia** HIRSUTA. Cav. Diss. 6. 323, **t. 175, f. 1.**
Riedleia hirsuta, DC. Chapman, Coult. Bot. Gazette, 3. 3.

M. SERRATA. Benth.; Griseb. Fl. Brit. W. Ind. 93.
Riedleia serrata, Vent. Chapman, l. c.

TILIACEÆ.

145. After *Tilia glabra* insert: — *T. latifolia.* Salisb. Prodr. 367.
After *T. laxiflora* insert: — *T. grata.* Salisb. l. c.

LINACEÆ.

146. Under **Linum aristatum** & **digynum** insert: — Brew. & Wats. l. c. 89.

Under **L. adenophyllum, Breweri, Californicum, congestum** & **micranthum** insert: — Brew. & Wats. l. c. 90.

Under **L. perenne** insert: — Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 318. Brew. & Wats. l. c. 89.

147. Under **L. spergulinum** & USITATISSIMUM insert: — Brew. & Wats. l. c. 90.

Under **L. striatum** & **sulcatum** insert: — Macoun & Gibson, l. c.

ZYGOPHYLLACEÆ.

148. Under **Fagonia Californica** insert: — Brew. & Wats. Bot. Calif. 1. 92.

149. Under **Larrea Mexicana** insert: — Brew. & Wats. l. c.

Under **Tribulus grandiflorus** & **maximus** insert: — Brew. & Wats. l. c. 91.

Insert **T. Californicus.** Watson, Proc. Am. Acad. 11. 125. Brew. & Wats. Bot. Calif. 1. 91. (Lower California.)

GERANIACEÆ.

Insert **Erodium** BOTRYS, Bertol. Brew. & Wats. Bot. Calif. 1. 95.

Under **E. cicutarium** insert: — Watson, Proc. Am. Acad. 11. 108 & 113. Brew. & Wats. l. c. 94.

150. Under **E. macrophyllum** & **Texanum** insert: — Brew. & Wats. l. c. 95.

Under **E.** MOSCHATUM insert: — Watson, l. c. 114. Brew. & Wats. l. c.

Under **Flœrkia proserpinacoides** insert: — Brew. & Wats. l. c.

Under **Geranium cæspitosum** & **Carolinianum** insert: — Brew. & Wats. l. c. 94.

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151. Under **G. maculatum** insert: — Barton, Veg. Mat. Med. 1, **t. 13.**

Under **G. Richardsoni** insert: — Brew. & Wats. l. c.

152. Under **Impatiens fulva** insert: — Tuckerman, Josselyn's Rarities, 104, **fig.**

Under **Limnanthes Douglasii** insert: — Brew. & Wats. l. c.

Under **Oxalis Acetosella** insert: — Brew. & Wats. l. c. 96.

153. Under **O. corniculata** insert: — Muell. Pl. Indig. Vict. 1. 177. Brew. & Wats. l. c.

Under *O. pusilla & ambigua* insert: — Salisb. Prodr. 322.

Under **O. Oregana** insert: — Brew. & Wats. l. c.

154. After *O. longiflora* insert: — *O. pulchella.* Salisb. Prodr. 321.

RUTACEÆ.

Insert **CANOTIA holacantha.** Torrey, Pac. R. Rep. 4. 68. Gray, Ives' Rep. 15; Proc. Am. Acad. 12. 159. Baillon, Adansonia, 10. 18; Hist. Pl. 6. 7 & 42. Brew. & Wats. Bot. Calif. 1. 190.

Kœberlinia (?) —— ? Engelm. in Emory's Rep. 158, **f. 14.**

Under **Ptelea angustifolia** insert: — Brew. & Wats. Bot. Calif. 1. 97.

After **P. trifoliata** insert: — *Amyris elemifera.* Linn. Spec. 2 ed. 295, as to syn. Catesb. & hab. St. Hil. Fam. Nat. 1. 253.

P. viticifolia. Salisb. Prodr. 68.

155. Under **Thamnosma montanum** insert: — Brew. & Wats. Bot. Calif. 1. 97.

Under **T. Texanum** insert: — Brandegee, Fl. S. W. Col. 234. Brew. & Wats. l. c.

156. After *Xanthoxylum tricarpum* insert: — *Kampmania fraxinifolia.* Raf. Med. Rep. 5. 354. Desv. Journ. Bot. 2. 170.

SIMARUBEÆ.

Insert **SURIANA maritima.** Linn. Spec. 284. [DC. Prodr. 2. 91. Benth. Fl. Austral. 1. 375. Griseb. Fl. Brit. W. Ind. 58.] Torr. & Gray, Fl. 1. 556. Chapman, 149.

OLACINEÆ.

157. Insert **SCHŒPFIA arborescens.** Roem. & Schult. Syst. 5. 100, with syn. [DC. Prodr. 4. 319 & 14. 622. Griseb. Fl. Brit. W. Ind. 310.] Chapman, Coult. Bot. Gazette, 3. 3.

ILICINEÆ.

158. Under **Ilex** *vomitoria* insert: — Salisb. Prodr. 70. Curtis, Bot. N. Car. 126. Croom, Cat. Pl. Newbern, 45.

CELASTRACEÆ.

162. After **Euonymus** *latifolius* insert: — *E. tristis.* Salisb. Prodr. 142.

Under **E. occidentalis** insert: — Brew. & Wats. Bot. Calif. 1. 98.

Dele **Glossopetalon.** (To *Sapindaceæ.*)

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Under **Mortonia Greggii** insert: — Baillon, Hist. Pl. 6. 7 & 42.

Insert **Myginda pallens**. Smith, Rees Cycl. [DC. Prodr. 2. 13. Griseb. Fl. Brit. W. Ind. 146.] Chapman, Coult. Bot. Gazette, 3. 3.

163. Under **Pachystima Myrsinites** insert: — Brew. & Wats. Bot. Calif. 1. 99. Hall, Coult. Bot. Gazette, 2. 86.

RHAMNACEÆ.

Insert **Adolphia Californica**. Watson, Proc. Am. Acad. 11. 126. Brew. & Wats. Bot. Calif. 1. 101.

A. infesta. Torrey, Mex. Bound. 45, in part.

Under **A. infesta** insert: — Watson, l. c. Brew. & Wats. l. c.

Under *Rhamnus volubilis* insert: — Forster, Cat. Pl. N. Am. 27.

164. After *Ceanothus trinervus* insert: — *Forestia thyrioides*. Raf. Med. Rep. 5. 351. Desv. Journ. Bot. 2. 168.

Under **C. cordulatus & decumbens** insert: — Brew. & Wats. l. c. 103.

Under **C. crassifolius & cuneatus** insert: — Watson, Proc. Am. Acad. 11. 114. Brew. & Wats. l. c. 104.

165. Under **C. dentatus & integerrimus** insert: — Brew. & Wats. l. c. 102.

Under **C. divaricatus** insert: — Gard. Chron. 1843, 523. Brew. & Wats. l. c. 103.

Under **C. floribundus** insert: — Brew. & Wats. l. c. 104.

Under **C. hirsutus & incanus** insert: — Brew. & Wats. l. c. 103.

Under **C. integerrimus** insert:

Var. **parvifolius**. Watson, l. c. 10. 334. Brew. & Wats. l. c. 102.

166. Under **C. papillosus, prostratus & rigidus** insert: — Brew. & Wats. l. c. 104.

Under **C. Oreganus** insert: — Hall, Coult. Bot. Gazette, 2. 86.

Under **C. sorediatus & spinosus** insert: — Brew. & Wats. l. c. 103.

After **C. sorediatus** insert: — ? *C. collinus*. Dougl.; Knight & West, Fl. Cab. 1, t. **13**. Maund, Bot. 1, t. **16**. Loud. Arb. 4. 2547, **fig. 2431**.

Under **C. thyrsiflorus** insert: — Brew. & Wats. l. c. 102.

167. Under **C. Veitchianus** insert: — Brew. & Wats. l. c. 104.

Under **C. velutinus** insert: — Brew. & Wats. l. c. 102. Hall, Coult. Bot. Gazette, 2. 86.

168. Under **Microrhamnus ericoides** insert: — Brew. & Wats. Bot. Calif. 1. 99. Referred to *Condalia* by Baillon, Hist. Pl. 6. 64.

Under **Rhamnus alnifolia** insert: — Brew. & Wats. l. c. 100.

Under **R. Californica** insert: — Brandegee, Fl. S. W. Col. 234. Brew. & Wats. l. c. 101.

After *Endotropis oleifolia* insert: — ? *Perfonon laurifolium*. Raf. Sylv. Tellur. 29.

After Var. **tomentella** & syn. insert: — *Karwinskia Humboldtiana*. Watson, Pl. Wheeler, 7.

169. Under **R. crocea** insert: — Palmer, Am. Naturalist, 8. 247. Watson, Proc. Am. Acad. 11. 114. Brew. & Wats. l. c. 100.

Insert **R. Insulus**. Kellogg, Proc. Calif. Acad. 2. 20. (Cerros Is.)

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169. Under **R. Purshiana** insert: — Brew. & Wats. l. c. 101. Hall, l. c.

170. Under **Zizyphus Parryi** insert: — Benth. & Hook. Gen. Pl. 1. 376. Brew. & Wats. Bot. Calif. 1. 99.

VITACEÆ.

Under *Vitis quinquefolia* insert: — Benth. & Hook. Gen. Pl. 1. 387.

172. After *Ampelopsis pinnata* insert: — *Nekemias bipinnata.* Raf. Fl. Tellur. 87.

Under **Vitis Arizonica** & **Californica** insert: — Brew. & Wats. l. c. 105.

173. After *Cissus Ampelopsis* insert: — *Ampelopsis cordifolia.* Raf. Fl. Tellur. 88.

174. Insert **V. sicyoides.** Benth. & Hook. Gen. Pl. 1. 387, uniting the genera *Vitis* & *Cissus.* See syn. in Griseb. Fl. Brit. W. Ind. 102, as *Cissus.* — Chapman, Coult. Bot. Gazette, 3. 3.

Cissus sicyoides. Linn. Spec. 2 ed. 170.

SAPINDACEÆ.

Under **Acer circinatum** insert: — Brew. & Wats. Bot. Calif. 1. 107. Hall, Coult. Bot. Gazette, 2. 85.

A. virgatum. Raf. New Flora, 1. 48.

Under **A. glabrum** insert: — Brew. & Wats. l. c.

Under **A. macrophyllum** insert: — Brew. & Wats. l. c. Hall, l. c.

A. palmatum. Raf. New Flora, 1. 48.

177. Under **Æsculus Californica** insert: — Gard. Chron. 1858, 844. Brew. & Wats. Bot. Calif. 1. 106. Berry, Garden, 12. 204, figs.

179. After *Pavia rubra* insert: — *Pavia Americana.* St. Hil. Fam. Nat. 2. 152.

Insert **GLOSSEPETALON Nevadense.** Gray, Proc. Am. Acad. 11. 73. Brew. & Wats. Bot. Calif. 1. 109.

G. spinescens. Gray, Pl. Wright. 2. 29, t. 12; Pl. Thurb. 299; Proc. Am. Acad. 11. 73. Torrey, Pac. R. Rep. 4. 74; Mex. Bound. 47. Walp. Ann. 4. 426. Baillon, Hist. Pl. 6. 7 & 42. Brandegee, Fl. S. W. Col. 234. Brew. & Wats. l. c.

180. Under **Negundo aceroides** insert: — Macoun & Gibson, Trans. Bot. Soc. Edinb. 12. 319. Brew. & Wats. Bot. Calif. 1. 108.

After *N. fraxinifolium* insert: — *Acer fraxinifolium, trifoliatum & lobatum.* Raf. New Flora, 1. 48.

Under **N. Californicum** insert: — Brew. & Wats. l. c.

Insert **Sapindus Saponaria.** Linn. Spec. 367. [DC. Prodr. 1. 607. Griseb. Fl. Brit. W. Ind. 126.] Chapman, Coult. Bot. Gazette, 3. 3.

After *S. falcatus* insert: — *S. acuminata.* Raf. New Flora, 22.

Under **Serjania incisa** insert: — Walp. Ann. 7. 619. Radlkofer, Monog. Serj. 267.

Serjania ? aff. *S. racemosæ.* Gray, Pl. Wright. 1. 38.

181. Under **S. racemosa** insert: — Radlkofer, l. c., with syn.

Under **Staphylea Bolanderi** insert: — Brew. & Wats. Bot. Calif. 1. 108.

Insert **S. (?) geniculata.** Kellogg, Proc. Calif. Acad. 2. 22. (Cerros Islands.)

ANACARDIACEÆ.

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181. Under **Pistacia Mexicana** insert: — Brew. & Wats. Bot. Calif. 1. 109.

182. Under **Rhus diversiloba** insert: — Brew. & Wats. Bot. Calif. 1. 110. Hall, Coult. Bot. Gazette, 2. 85.

After *R. lobata* insert: — *R. Toxicodendron*, var. Gray, Mem. Am. Acad. 6. 384.

183. Under **R. integrifolia** insert: — Brew. & Wats. l. c.

Under **R. laurina** insert: — Watson, Proc. Am. Acad. 11. 114. Brew. & Wats. l. c. 111.

Under **R. Toxicodendron** insert:

R. Toxicarium & humile. Salisb. Prodr. 170.

184. After *Toxicodendron vulgare* insert: — *R. scandens.* Salisb. Prodr. 170.

Insert **R. Veatchiana.** Kellogg, Proc. Calif. Acad. 2. 24. (Cerros Islands.)

Under **Schinus** MOLLE insert: — Brew. & Wats. Bot. Calif. 1. 109.

LEGUMINOSÆ.

185. Under **Acacia Farnesiana** insert: — See syn. Benth. in Mart. Fl. Bras. 15^2. 394.

187. After *Amorpha perforata* insert: — *A. punctata.* Raf. New Flora, 3. 14.

189. After *Glycine filosa* insert: — *Savia volubilis.* Raf. Med. Rep. 5. 355. Desv. Journ. Bot. 2. 171.

After *Cryptolobus Americanus* insert: — *A. villosa, ciliata, etc.* Raf. New Flora, 1. 82 & 83.

Lobomon acutifolium, etc. Raf. New Flora, 1. 84.

Under **Apios tuberosa** insert: — Barton, Comp. Fl. Phil. 2. 82. Tuckerman, Josselyn's Rarities, 76. Thurber, Am. Agriculturist, 36. 21. Gray, same, 36. 22.

After *Glycine Apios* insert: — *Glycine tuberosa.* Salisb. Prodr. 335.

190. Insert **Astragalus allochrous.** Gray, Proc. Am. Acad. 13. —. (Coll. Palmer, Ariz. 1876, n. 588.)

A. amphioxys. Gray, l. c.

A. succumbens. Gray, Ives' Rep. 10.

A. Shortianus, var. (?) *minor.* Gray, Proc. Am. Acad. 6. 211. Watson, King's Rep. 5. 440.

A. cyaneus. Torr. & Gray, Pac. R. Rep. 2. 163. Torrey, Mex. Bound. 56. Watson, Am. Naturalist, 9. 270, excl. syn.

A. Shortianus. Watson, Pl. Wheeler, 7.

A. artipes. Gray, l. c. 13. —. (Coll. Palmer, N. Ariz. 1877.)

192. After **A. collinus** & syn. insert:

Var. **Californicus.** Gray, Proc. Am. Acad. 12. 54.

Dele **A. cyaneus** & syn.

A. confertiflorus. Gray, l. c. 13. —. (Coll. Palmer, 1877, n. 113.)

A. Cusickii. Gray, l. c. (Coll. Cusick, Oregon, 1877.)

193 **A. dispermus.** Gray, l. c. (Coll. Palmer, Ariz. 1876.)

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193. Under **A. flavus** insert:
Var. **candicans.** Gray, Proc. Am. Acad. 12. 54.

194. Under **A. Haydenianus** insert: — Gray, Proc. Am. Acad. 12. 56.

195. Under **A. humillimus** insert: — Gray, l. c. 12. 57.

A. lancearius. Gray, l. c. 13. —. (Coll. Palmer, 1877, n. 114.)

197. Under **A. Menziesii** insert: — Kellogg, Proc. Calif. Acad. 6. 3.

A. Mokiacensis. Gray, l. c. (Coll. Palmer, 1877, n. 105.)

198. Insert **A. Newberryi.** Gray, Proc. Am. Acad. 12. 55.
A. Chamæleuce. Gray, Ives' Rep. 10, in part. Watson, King's Rep. 5, 443, in part.

199. Under **A. Pattersoni** insert: — Gray, Proc. Am. Acad. 12. 55.

200. **A. procerus.** Gray, l. c. 13. —. (Coll. Palmer, 1877, n. 112.)

A. sabulorum. Gray, l. c. (Coll. Palmer, 1877, n. 110.)

A. scaposus. Gray, l. c. (Coll. Palmer, 1877, n. 109.)

201. Under *A. cyaneus* insert: — Gray, Pl. Fendl. 34. Walp. Ann. 2. 375.

Under **A. subcompressus** insert: — Gray, Proc. Am. Acad. 12. 56.

A. subcinereus. Gray, l. c. 13. —. (Coll. Palmer, 1877, n. 117.)

A. tetrapterus. Gray, l. c. (Coll. Palmer, 1877, n. 111.)

202. **A. triquetrus.** Gray, l. c. (Coll. Palmer, N. Ariz. 1877.)

A. ursinus. Gray, l. c. (Coll. Palmer, N. Ariz. 1877.)

A. tricarinatus. Gray, Proc. Am. Acad. 12. 56.

A. Wardi. Gray, l. c. 55.

207. Insert **Cassia ligustrina.** Linn. Spec. 378. [Griseb. Fl. Brit. W. Ind. 208. Benth. Rev. Cass. 534.] Chapman, Coult. Bot. Gazette, 3. 4.

209. After *Clitoria calcarigera* insert: — *Ternatea Virginiana.* St. Hil. Fam. Nat. 2. 226.

210. Under *Virgilia lutea* insert: — Michx. f. Trav. 289.

Insert **Crotalaria incana.** Linn. Spec. 716. [Cav. Icon. Rar. 4, t. 322. DC. Prodr. 2. 132. Griseb. Fl. Brit. W. Ind. 180, with syn. Benth. in Mart. Fl. Bras. 15^1. 27, with syn.] Chapman, Coult. Bot. Gazette, 3. 4.

C. maritima. Chapman, l. c.

Under **C. pumila** insert: — Chapman, l. c.

211. After *Genista angulata* insert: — *Sarothamnus scoparius,* Koch. Lawson, Proc. Nov. Scot. Instit. 4. 171.

218. Insert **Desmodium triflorum.** DC. Prodr. 2. 334. See syn. in DC. l. c.; Griseb. Fl. Brit. W. Ind. 186; Benth. in Mart. Fl. Bras. 15^1. 95, **t. 26.** — Chapman, Coult. Bot. Gazette, 3. 4.

219. Insert **ECASTAPHYLLUM Brownei.** Persoon, 2. 277. See syn. in DC. Prodr. 2. 420; Benth. in Mart. Fl. Bras. 15^1. 228. — Chapman, l. c.

Insert **Erythrina Corallodendron.** Linn. Spec. 706 ? [DC. Prodr. 2. 411. Griseb. Fl. Brit. W. Ind. 199. Benth. l. c. 174.] Chapman, l. c.

After **E. herbacea** insert: — *E. humilis.* Salisb. Prodr. 335.

220. Insert **Galactia Cubensis.** HBK. Nov. Gen. 6. 429. [DC. Prodr. 2. 237.] Chapman, Coult. Bot. Gazette, 3. 4.
G. spiciformis, var. Chapman, Fl. 108.

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223. Under *Hedysarum alpinum* insert: — Glehn, Act. Hort. Petrop. 4. 34.

232. After **Lespedeza angustifolia** insert: — *Trifolium alpinum.* **Forster, Cat. Pl. N. Am. 48.**

233. Under **L.** STRIATA insert: — Chapman, Coult. Bot. Gazette, 3. 4.

235. Insert **Lupinus Arizonicus.** Watson, Proc. Am. Acad. 12. 250.
L. sparsiflorus. Torrey, Pac. R. Rep. 4. 81, in part.
L. hirsutissimus. Gray, Ives' Rep. 9.
L. concinnus, var. (?) *Arizonicus.* Watson, Rev. Lup. 537. **Brew. & Wats.** Bot. Calif. 1. 124.

236. Dele **L. concinnus, var. Arizonicus.**

238. Dele **L. micranthus**, var. **trifidus.**

241. Insert **L. trifidus.** Torrey; Watson, Proc. Am. Acad. 12. 250.
L. bicolor. Torrey, Pac. R. Rep. 4. 81, in part.
L. micranthus, var. *trifidus.* Watson, Rev. Lup. 535. **Brew. & Wats.** l. c. 123.

245. Under **Oxytropis Lamberti** insert: — Kellogg, Proc. Calif. Acad. 6. 4.

252. Under **Prosopis juliflora** insert: — Benth. in Mart. Fl. Bras. 15^2. 289, & syn.
Insert **Psoralea castorea.** Watson, Proc. Am. Acad. 13. —.

254. Insert **P. mephitica.** Watson, l. c.

257. Under **Robinia Pseudacacia** insert: — Gard. Chron. 2. 6. 748 **(vars.).**
R. fragilis. Salisb. Prodr. 336.
Var. **Decaisneana.** Carriere, Rev. Hort. 1863, 151, **t. Garden, 9. 36, fig.** Belg. Hort. 1876, 111.

269. Insert **Vicia Reverchoni.** Watson, Proc. Am. Acad. 13. —

270. Transpose *Anonymos frutescens* & *Glycine frutescens*, and insert:
Kraunhia frutescens. Raf. Med. Rep. 5 355. **Desv. Journ. Bot. 2. 171.**

ROSACEÆ.

272. Under **Amelanchier alnifolia** insert: — Hall, Coult. Bot. Gazette, 2. 87.
After *Mespilus nivea* insert: — *Cratægus amœna.* **Salisb. Prodr. 357.**
After *Mespilus arborea* insert: — *Aronia arborea.* **Barton, Comp. Fl. Phil. 1. 228.**

273. Dele **Canotia holacantha** & syn. (To *Rutaceæ.*)

277. After *Mespilus cuneifolia* insert: — *Cratægus calcarigera.* **Salisb. Prodr. 357.**

278. Under **Cratægus Douglasii** insert: — Hall, Coult. Bot. Gazette, 2. 86.

279. Under **C. rivularis** insert: — Hall, l. c. 87.

282. Under *Dryas Drummondii* insert: — Glehn, Act. Hort. Petrop. 4. 39.
After *Fragaria vesca*, var. *Chiloensis*, insert: — *F. grossa.* **Salisb. Prodr. 363.**

283. After *F. vesca* insert: — *F. odora.* Salisb. Prodr. 363.
Under **F. vesca & Virginiana** insert: — Tuckerman, **Josselyn's Rarities, 73.**

289. Under **Neillia opulifolia** insert: — Hall, Coult. Bot. Gazette, 2. 86.

290. Under **Nuttallia cerasiformis** insert: — Rev. Hort. 1876, 52, **fig.** (Belg. Hort. 1877, 180). Hall, Coult. Bot. Gazette, 2. 86.

292. Under *Malus coronaria* insert: — Rev. Hort., Nov. 1877, **t.**
Cratægus coronaria. Salisb. Prodr. 357.

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292. Under **Pirus rivularis** & **sambucifolia** insert: — Hall, l. c. 2. 87.

293. After **Potentilla arguta** insert: — *Geum laciniatum.* Murr. Comm. Goętt. 5. 36, t. 2 ?

300. After Var. **strigosa** insert: — *P. strigosa.* Pall.; Tratt. Ros. 4. 31.

303. Insert **Prunus Alleghaniensis.** Porter, Coult. Bot. Gazette, 2. 85.

304. After *P. Lusitanica* insert: — *P. nitida.* Salisb. Prodr. 356.

Under **P. demissa** insert: — Hall, Coult. Bot. Gazette, 2. 86.

305. Under Var. **mollis** insert: — Hall, l. c.

308. After *P. rubra* insert: — *P. nitida.* Salisb. Prodr. 356.

310. Under **Rosa Californica** insert: — Hall, Coult. Bot. Gazette, 2. 86.

311. After *R. Carolinensis* insert: — *R. fragrans.* Salisb. Prodr. 358.

Under *R. Kamtschatica* & **gymnocarpa** insert: — Hall, l. c.

312. Under *R. blanda* (?) & **pisocarpa** insert: — Hall, l. c.

315. Under *Dalibarda repens* insert: — Gray, Am. Journ. Sci. 3. 15. 71, maintaining the genus.

316. Under **Rubus leucodermis** & **Nutkanus** insert: — Hall, l. c. 87.

317. After **R. odoratus** insert: — *R. grandifolius.* Salisb. Prodr. 364.

Under **R. spectabilis** & **ursinus** insert: — Hall, l. c.

320. Under **Spiræa betulifolia** insert: — Hall, Coult. Bot. Gazette, 2. 86.

Under *S. corymbosa* insert: — Gordon, Garden, 12. 189.

321. Under **S. Douglasii** & var. **Menziesii** insert: — Hall, l. c.

Under *S. Nobleana, Menziesii* & *ariæfolia* insert: — Gordon, Garden, 12. 187.

Under **S. discolor**, var. **ariæfolia**, insert: — Hall, l. c.

322. Under *S. carpinifolia* & **tomentosa** insert: — Gordon, l. c.

SAXIFRAGACEÆ.

323. **Insert Bolandra Oregana.** Watson, Proc. Am. Acad. 13. —.

324. Under **Chrysosplenium alternifolium** insert: — See syn. in Maxim. Bull. Acad. Petersb. 23. 341 (Mel. Biol. 9. 761), referring the American form to var. **tetrandrum**, Lund.

Under **C. Americanum** & **glechomæfolium** insert: — Maxim. l. c. 765 & 766 (Mel. Biol. 9. 345 & 346).

After *Forsythia scandens* insert: — *Decumaria scandens.* Salisb. Prodr. 355.

328. After **Itea Virginica** insert: — *I. padifolia.* Salisb. Prodr. 143.

331. Under **Philadelphus Lewisii** insert: — Hall, Coult. Bot. Gazette, 2. 87.

Under **Ribes aureum** & **bracteosum** insert: — Hall, l. c.

333. Under **R. divaricatum** & **Menziesii** insert: — Hall, l. c.

336. Under **R. sanguineum** & **viscosissimum** insert: — Hall, l. c.

343. Under **Saxifraga oppositifolia** insert: — Niven, Garden, 6. 78.

Under **S. peltata** insert: — Garden, 10. 336, t. (Belg. Hort. 1877, 169).

348. **Insert Sullivantia Oregana.** Watson, Proc. Am. Acad. 13. —.

CRASSULACEÆ.

Page

352. Under **Sedum stenopetalum** insert: — Baker, Gard. Chron. 2. 8. 307.

HAMAMELACEÆ.

355. After **Liquidambar Styraciflua** insert: — *L. gummifera.* Salisb. Prodr. 393.

MYRTACEÆ.

359. Under *Psidium pyriforme* insert: — Chapman, Coult. Bot. Gazette, 3. 5.

MELASTOMACEÆ.

360. Under **Rhexia Virginica** insert: — Niven, Garden, 11. 294, **t. 69.**

After *R. septemnervia* insert: — *R. hirsuta.* Salisb. Prodr. 365.

361. Under *Peplis diandra* insert: — Baillon, Hist. Pl. 6. 438.

362. Under **Nesæa salicifolia** insert: — Baillon, l. c. 429, **f. 394, 395.**

ONAGRACEÆ.

363. Under **Clarkia pulchella** insert: — Baillon, l. c. 464, **f. 432, 433** (fl.).

365. Under **Epilobium latifolium** insert: — *Chamœnerium latifolium*, var. *ambiguum.* Lange, Fl. Dan. t. **2901**; Bull. Acad. Dan. 1877, 36 & 82.

367. Under *Chamœnerium angustifolium* insert: — Lange, l. c. 36 & 83.

368. Under **Eulobus Californicus** insert: — Referred to *Œnothera* by Baillon, Hist. Pl. 6. 461.

369. Under **Gaura Lindheimeri** insert: — Baillon, l. c. 468, **f. 440–442.**

373. Under **Jussiæa Peruviana** insert:

J. macrocarpa, HBK. Chapman, Coult. Bot. Gazette, 3. 5.

374. Under **Ludwigia alternifolia** insert: — Barton, Elem. Bot. **t. 10, f. 2.** St. Hil. Fam. Nat. 2. 151.

375. Under **L. palustris** insert: — See syn. in Baillon, Bull. Soc. Par. 1876, 101.

376. Before *L. apetala* insert: — *L. repens.* Forster, Cat. Pl. N. Am. 22.

377. Under **Œnothera biennis** insert: — Baillon, Hist. Pl. 6. 459, **f. 427–429.**

Insert **Œ. ambigua.** Watson, Proc. Am. Acad. 13. —.

383. Under **Œ. micrantha** insert: — Baillon, l. c. 461, **f. 431** (fl.).

386. Under **Œ. speciosa** insert: — Baillon, l. c. 460, **f. 430** (fl.).

387. After **Œ. triloba** & syn. insert:

Var. (?) **parviflora.** Watson, Proc. Am. Acad. 12. 251.

LOASACEÆ.

389. After **Eucnide bartonioides** insert:

Mentzelia gronoviæfolia. Fisch. & Mey. Ind. Sem. Hort. Petrop. 10. 54.

Under *Microsperma bartonioides* insert: — Fl. Serres, 5, t. **532.** Lem. Jard. Fl. t. **15.** Regel, Sert. Petrop. 1869, t. **11.**

Under **Mentzelia Floridana** insert: — Chapman, Coult. Bot. Gazette, 3. 5.

PASSIFLORACEÆ.

Page
392. Under *Papaya vulgaris* insert: — Chapman, l. c. 3. 12.

CUCURBITACEÆ.

394. After *Sicyos lobatus* insert:
Micrampelis echinata. Raf. Med. Rep. 5. 351. Desv. Journ. Bot. 2. 167.

After **Elaterium Coulteri** & syn. insert:
Echinopepon horridum. Naudin, Ann. Sci. Nat. 5. 6. 19; fide Cogniaux.
Echinocystis Coulteri. Cogniaux, Diag. Cucurb. (Bull. Soc. Belg. 46. 37).

After **E. Wrightii** insert: — *Echinocystis Wrightii*, Cogniaux, l. c.

Under **Lagenaria** VULGARIS insert: — Croom, Cat. Pl. Newb. 43.

After **Megarrhiza Oregana** & syn. insert:
Echinocystis Oregana. Cogniaux, l. c.

FICOIDEÆ.

410. Insert **Cypselea humifusa.** Turpin, Ann. Mus. 7. 219, **t. 121, f. 5.** Tratt. Obs. Bot. 2. 41, **t. 72.** DC. Prodr. 3. 353. Griseb. Fl. Brit. W. Ind. 56. Chapman, Coult. Bot. Gazette, 3. 2.
Radiana petiolata. Raf. Specch. 1. 88.

WHOLLY DOUBTFUL SPECIES OMITTED.

Aconitum Nuttallii. Sweet, Hort. Brit. 2 ed. 584. Loud. Hort. Brit. Suppl. 579. Probably never described.
A. pallidum. Nutt.; Loud. Hort. Brit. 482. Torr. & Gray, Fl. 1. 34.

Actæa pentagyna. Walter, 151.

Hydrastis Caroliniensis. Walter, 156.

Opuntia microcarpa. Engelm. in Emory's Rep. 157, **f. 7.**

O. Stanleyi. Engelm. l. c. **f. 9.**

O. violacea. Engelm. l. c. **f. 8.**

Orimaria filiformis. Raf.; Seringe, Bull. Bot. Soc. Genev. 1830, 218 (Litt.-Ber. zu Linnæa, 1833, 82).

Ranunculus collinus. Beck; Eaton, Manual, 5 ed. 360. Eat. & Wr. 389.

TABLE OF ORDERS,

WITH THE NUMBER OF THEIR GENERA AND SPECIES, WHETHER INDIGENOUS, NATURALIZED, OR ONLY ADJACENT MEXICAN.

Orders.	Indigenous.		Naturalised.		Mexican.	
	Genera.	Species.	Additional Genera.	Species.	Additional Genera.	Species.
Ranunculaceæ	18	145	2	8	.	2
Dilleniaceæ	1	2	.	.	.	.
Calycanthaceæ	1	4	.	.	.	.
Magnoliaceæ	4	11	.	.	.	.
Anonaceæ	2	6	.	.	.	.
Menispermaceæ	3	4	.	.	.	.
Berberidaceæ	7	15	.	1	.	.
Nymphæaceæ	5	13	.	.	.	.
Sarraceniaceæ	2	8	.	.	.	.
Papaveraceæ	13	17	2	5	1	1
Fumariaceæ	3	17	1	1	.	.
Cruciferæ	37	213	5	28	.	2
Capparidaceæ	9	25	1	2	.	.
Resedaceæ	1	1	1	1	.	.
Cistaceæ	3	17	.	.	.	.
Violaceæ	2	32	.	2	.	1
Canellaceæ	1	1	.	.	.	.
Bixineæ	1	2	.	.	.	1
Polygalaceæ	3	39	.	.	.	2
Frankeniaceæ	1	2	.	.	.	1
Caryophyllaceæ	12	116	3	19	.	5
Paronychieæ	5	17	1	1	.	.
Portulacaceæ	9	41	.	1	.	.
Tamariscineæ	1	3	.	.	1	1
Elatineæ	2	4	.	.	.	.
Hypericaceæ	3	38	.	1	.	.
Guttiferæ	.	.	.	.	1	1
Ternstrœmiaceæ	2	4	.	.	.	.
Malvaceæ	17	90	3	14	2	7
Sterculiaceæ	5	10	.	.	.	.
Tiliaceæ	2	4	1	1	.	.
Linaceæ	1	17	.	1	.	1
Malpighiaceæ	5	7	.	.	1	2
Zygophyllaceæ	5	7	.	.	1	3
Geraniaceæ	6	26	.	5	.	1
Rutaceæ	6	12	2	2	.	.
Simarubeæ	6	6	.	.	.	.
Burseraceæ	2	3	.	.	.	1
Meliaceæ	1	1	.	.	1	1
Olacineæ	2	2	.	.	.	.
Ilicineæ	2	14	.	.	.	.
Celastraceæ	7	16	.	.	.	.
Rhamnaceæ	12	45	.	1	.	1
Vitaceæ	2	16	.	.	.	.
Sapindaceæ	13	31	.	.	.	3
Anacardiaceæ	2	15	.	1	1	2
Leguminosæ	67	685	8	32	1	17
Rosaceæ	35	198	.	14	.	1

TABLE OF ORDERS, — *Continued.*

Orders.	Indigenous.		Naturalized.		Mexican.	
	Genera.	Species.	Additional Genera.	Species.	Additional Genera.	Species.
Saxifragaceæ . .	23	134	. . .	1	. . .	. . .
Crassulaceæ . . .	5	34	1	3	. . .	1
Droseraceæ . . .	2	8	. . .	. . .	. . .	. . .
Hamamelaceæ . .	3	3	. . .	. . .	. . .	. . .
Haloragæ . . .	3	14	. . .	. . .	. . .	. . .
Rhizophoraceæ . .	1	1	. . .	. . .	. . .	. . .
Combretaceæ . .	2	2	1	1	. . .	. . .
Myrtaceæ	3	9	. . .	1	. . .	. . .
Melastomaceæ . .	1	8	. . .	. . .	. . .	. . .
Lythraceæ . . .	5	15	. . .	1	. . .	. . .
Onagraceæ . . .	15	145	. . .	1	. . .	4
Loasaceæ	5	25	. . .	. . .	. . .	2
Turneraceæ . . .	1	1	. . .	. . .	. . .	. . .
Passifloraceæ . .	2	8	. . .	. . .	. . .	2
Cucurbitaceæ . .	12	26	4	8	. . .	1
Datiscaceæ . . .	1	1	. . .	. . .	. . .	. . .
Cactaceæ	5	120	. . .	4	. . .	16
Ficoideæ	4	5	1	2	. . .	. . .
Umbelliferæ . . .	45	108	5	14	. . .	1
Araliaceæ . . .	2	9	1	1	. . .	. . .
Cornaceæ	3	28	. . .	. . .	. . .	1
	492	2775	43	178	10	85

Total number of	Orders	. . . . .	69
„ „	Genera	. . . . .	545
„ „	Species	. . . . .	3038

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SMITHSONIAN MISCELLANEOUS COLLECTIONS.

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THE TONER LECTURES

INSTITUTED TO ENCOURAGE THE DISCOVERY OF NEW TRUTHS FOR THE ADVANCEMENT OF MEDICINE.

LECTURE I.

ON THE STRUCTURE OF CANCEROUS TUMORS AND THE MODE IN WHICH ADJACENT PARTS ARE INVADED.

BY

J. J. WOODWARD, ASSISTANT SURGEON, U. S. A.

DELIVERED MARCH 28, 1873.

WASHINGTON:

SMITHSONIAN INSTITUTION.

NOVEMBER, 1873.

RADCLIFFE

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JOSEPH HENRY,

Secretary Smithsonian Institution.

SMITHSONIAN INSTITUTION.

Washington, November, 1873.

LECTURE I.

Delivered March 28, 1873.

ON THE STRUCTURE OF CANCEROUS TUMORS, AND THE MANNER IN WHICH ADJACENT PARTS ARE INVADED.

BY J. J. WOODWARD, *Assistant Surgeon, U.S.A.*

GENTLEMEN:—After much hesitation as to a subject suitable for such an occasion as this, I determined to invite your attention to certain considerations with regard to Cancer, a disease which merits study both because of the considerable mortality it produces—more than six thousand deaths annually in the United States*—and because of the obscurity which surrounds every question connected with its origin, its nature, and its successful treatment.

The plan of my discourse is extremely simple. I shall make no attempt to solve this most difficult of all pathological problems. The time has not yet come for any one to tell why cancers originate or how they can be prevented or cured. It is only within the last eight years that we have begun to obtain more definite ideas as to the minute anatomy of these growths, their structural relations to surrounding parts, and the mode in which they multiply in distant organs. The purely anatomical questions involved are still so imperfectly worked out, there is still so much that is unknown, so much that is uncertain, so much as to which we have contradictory testimony from sincere investigators, that a wide field is still open for profitable histological research.

* Census of 1870, deaths of males, 2,301, females, 3,923, total, 6,224.

I propose then, first, to sketch as briefly as possible the modern progress of our knowledge of the minute anatomy of cancerous growths, and to indicate some of the most important points as to which conflicting views still exist; I shall next select a few typical specimens from the microscopical collection of the Army Medical Museum, and endeavor to show with all modesty, how far the structural details they exhibit correspond with the results obtained by European histologists, where differences are to be noticed I shall not hesitate to point them out, and I hope to be able to present several significant matters of detail which have either been entirely overlooked or not described with the accuracy they deserve.

In illustration of my remarks I shall project upon the screen with an ordinary oxy-calcium lantern some seventy photo-micrographs of the preparations selected for study, by which I hope to render my descriptions more intelligible. The original negatives, most of which I made expressly for this lecture, were taken with various powers from twenty-six to one thousand diameters. The lantern slides, for the sake of sharpness, are reduced to half the number of diameters in each case, and will be projected upon the screen with a magnifying power of fifty diameters.

At the very outset I must bespeak your patience, for though I shall only attempt to touch upon the salient points of my theme, and shall always endeavor to be as brief as is consistent with clearness, I fear I shall detain you beyond the usual period of time allotted to a scientific lecture.

My friend, Dr. Toner, the founder of these lectures, on learning the subject I had selected, expressed the hope that I might be able to contribute something which would aid the general practitioner in the diagnosis of cancerous from other morbid growths, and he justly remarked that the present uncertain condition of the question of diagnosis greatly facilitated the operations of charlatans by enabling them to report cures

ancer in almost every instance in which a non-malignant rowth is removed by their caustic pastes or plasters.

I fully sympathize with the wish thus expressed, but I warn ou at the beginning that you have not much to expect from ie in this direction. The best knowledge of those who know ost of this matter is not yet ripe enough to deal satisfactorily ith the question of prognosis in very many cases, and I take that the question of prognosis is involved in the sort of di- gnosis that the general practitioner wants to make. To this bject I will briefly recur in the sequel. Meanwhile I beg you put all questions of practical application out of your minds, nd join me in considering the subject from the point of view f medical science, rather than from that of medical or surgi- al art.

I begin then by drawing your attention to some of the more triking features in the general advance of our knowledge of ie structure of cancer, and especially since the year 1865, when ie publication of the work of Thiersch marks an epoch. The revious history of the subject I will pass over as briefly as ossible. Suffice it to remind you that in the earlier days of istological investigation the followers of Schwann supposed ancerous and other tumors to arise by free cell development a formless blastema exuded from the blood-vessels. The auses of the specific characteristics of individual growths ere then naturally sought in the blastemata, and the pecu- arities attributed to the blastemata were accounted for by upposing them to depend on special morbid conditions or yscrasiæ of the blood.

The great name of Rokitanski, at whose hands it found its ipest development and most masterly expression, induced the eneral acceptance of this hypothesis, and it was long the pre- ailing doctrine in the schools of Europe and America, in spite of the circumstance that the most eager and searching inves- igations of the physiological chemists utterly failed to discern

any actual differences in the composition of the blood which might serve for such a foundation as the speculation sorely needed.

Nor was it strange that under the influence of the doctrine of dyscrasiæ, the notion should arise that the specialized blastemata must express their specific natures by giving birth to peculiar elementary forms, or that the histologists of the day, very imperfectly acquainted with the normal structure of the body, and bewildered by the multiplicity of forms they observed in morbid growths, should too hastily have adopted the plausible doctrine of specific cancer cells, which more extended observation speedily rendered quite untenable.

The chief actor in the work of sweeping away these speculative opinions was unquestionably Virchow, to whom modern medical science owes so much in so many diverse directions. Virchow found, as any one may still do, in the connective tissue in the vicinity of cancers and many other morbid growths, little groups and rows of cells which he supposed to have been developed out of the normal connective tissue corpuscles. Similar heaps and rows were to be observed in the connective tissue of inflamed organs. The general doctrine was enunciated that the elements of all pathological new formations had their origin in the multiplication of normal cells, and that the connective tissue corpuscles were the actual point of departure in by far the majority of cases. The young cancer elements were, after all, not anatomically different at first from those of granulation tissue; it was in the monstrous development they subsequently underwent, and the premature retrograde metamorphoses by which they were smitten in the midst of their most luxuriant growth, that the key to the external history of cancer was to be sought. Against the doctrine of a primary cancerous dyscrasia, Virchow protested. The origin of the first growth was always to be looked for in local influences. Former injuries of one kind or another could be affirmed in a

large number of cases to have preceded the development of the disease, and though frequently the patient had lost all recollection of the original harm, yet it was in this direction we ought to look, rather than seek to explain away the real difficulties by invoking the aid of an imaginary cachexia.

Now that the brilliant superstructure of the cellular pathology has been shaken to its very foundation, and so much that Virchow labored to teach scattered to all the winds, we cannot, nevertheless, look upon either the man or his works without admiration and respect. None know better than the very men who led in the revolt against his doctrines, how carefully he built them upon the actual facts, so far as at the time they were in his possession; and in the presentation of the facts his descriptions were so clear and generally so nature-true that his works must long remain a mine of wealth to the sincere student. This is especially the case with his book on tumors,* the crowning monument of his industry and genius—a great work, which he has not yet finished. The last part published appeared in 1867; there still remained only the subject of cancer, but it has never been given to the world. During the time which had elapsed since the work was commenced the way had been paved for a histological revolution. In consequence of the multiplication of original investigators throughout Europe, and of the introduction of improved methods of histological research, new facts were being rapidly accumulated, and very many of them were in discordance with the cellular pathology. Still, after all, it ought not to be forgotten that it was two of Virchow's own assistants who made, in his own pathological laboratory, the brilliant series of discoveries which overthrew the splendid generalizations of their master. I refer of course to Von Recklinghausen and Cohnheim. The paper of Cohnheim on Inflammation,† published in Virchow's Archiv in 1867,

* Die Krankhaften Geschwülste. Berlin, 1863-7.
† Ueber Entzündung und Eiterung.

marks an epoch in the progress of our pathological views as important as the appearance of the Cellular Pathology.

Two years before the publication of that paper Professor Carl Thiersch, of Erlangen, published in Leipzig a book on epithelial cancer,* which is the first of the more recent special studies to which I wish to invite your attention. Thiersch investigated particularly cancers of the skin. He cut great numbers of thin sections and used methods of research which are still extensively employed in the investigation of morbid growths. His general conclusion was quite adverse to the doctrine of Virchow that cancers originate by the multiplication of the connective tissue corpuscles. So far from this being the case, in cancers of the skin at least, Thiersch declares that the essence of the morbid process is a cell multiplication in the lower soft layers of the epidermis, and in the epithelium of the glandular appendages of the skin, especially the sebaceous follicles. The result of this cell multiplication is the production of cylindrical processes, composed of epithelial cells, and growing into the adjacent connective tissue which disappears before them, precisely as happens during the development of hair sacs and sebaceous glands in the fœtus.

These cancer cylinders branch continually as they grow and increase at the same time in thickness, so that their actual relations are not easily detected in the older parts of the growth. At the margins, on the other hand, single small slices, such as are usually made for microscopical examination, are apt to display numerous transverse or oblique sections of individual cancer cylinders, which have been erroneously interpreted as outlying independent foci, and supposed to originate from the corpuscles of the connective tissue in which they are embedded. If, on the contrary, large sections are made, and especially if a number of thin sections, taken one after another, are compared together, it is easy to recognize that such outlying foci have

* Der Epithelialkrebs. Leipzig, 1865.

apparently a separate existence, and that everywhere the
r cylinders stand in direct anatomical connection either
the principal cancerous growth, or, at its margins, with
ebaceous glands or the rete-malpighii.

s true that a certain amount of cell multiplication takes
in the connective tissue between the cancer cylinders.
also true that in many cases the papillæ of the skin elon-
branch, and form a prominent framework for the luxuri-
pithelial growth which takes place upon their surface.
hese morbid processes in the connective tissue are to be
ded as quite subordinate to the proliferation of the deeper
elial layers which produces the cancer cylinders; and it
be remarked that while the elements of the cancer cylin-
have all the epithelial characteristics which might be
ted from their origin, the progeny of the connective tis-
orpuscles is a small-celled brood not unlike what is to be
red in ordinary granulation tissue.

ersch supported his interpretation of the appearances
in his sections by an appeal to the history of the devel-
nt of the embryo. The first significant fact after the
ive segmentation of the ovule is the differentiation of
art of the surface of the sphere which corresponds to the
body of the embryo into three distinct layers, a superior,
e and inferior layer. Now as the history of development
that the epithelium of the skin and of all its glands is
d by direct growth exclusively from the superior or horny
onic layer, while the connective tissue is derived exclu-
from the middle layer, the idea of the origin of the
lial elements of skin cancers from connective tissue
rs so contrary to the laws of normal development that it
not to be accepted without the most convincing proof.
h, in brief outline, were the views of Thiersch. I com-
his work to you as a most careful and conscientious study.
ever may be thought of his doctrine, his book is full of

well observed and accurately recorded facts, and its excellent atlas contains numerous faithful representations of appearances which may readily be observed by those who take the pains to follow his method of preparing sections.

In December, 1867, Professor Waldeyer of Breslau published in Virchow's Archiv * an elaborate essay on the development of carcinoma, in which he endeavored to extend the views of Thiersch to all other forms of cancer. For Waldeyer there are no essential differences between the so-called epithelial and other cancers; all are developed alike by the budding out of cancer cylinders from some normal epithelial structure. The cells of the cancer cylinders have everywhere a more or less pronounced epithelial type, as in fact was pointed out by Virchow as long ago as 1847.†

The particular characteristics presented in any given case are dependent to a great extent on the characters of the peculiar epithelial structure from which the cancer cylinders have originated. For example, in the case of cancer of the female breast, which has so long served as the basis of our general ideas of cancer, the cylinders sprout from the epithelium of the ducts and terminal vesicles of the mammary gland, and bud out into the surrounding connective tissue by a process of growth which is only a pathological repetition of the processes by which the gland was first developed; by which it attains its feminine dimensions at puberty; and by which it acquires its temporary increase at each period of lactation. Coincident with the development and growth of the cancer cylinders, the small-celled brood makes its appearance in the intervening connective tissue, but this is by no means the essential or significant part of the process.

Cancers of the stomach originate in like manner from the glands of the gastric mucous membrane which sprout through

* Virchow's Archiv, Bd. 41, S. 470. Die Entwicklung der Carcinome.
† Virchow's Archiv, Bd. 1, S. 94. Zur Entwicklungsgeschichte des Krebses.

the muscle of the mucous membrane into the submucous connective tissue, and thence burrow through the external muscular layers. Similar views are expressed for cancers of the uterus, the ovaries and other organs, while the general description of cancer of the skin, as given by Thiersch, is fully endorsed.

Waldeyer, like Virchow, pronounces against the doctrine of a primary cancer dyscrasia, which he regards as an utterly unjustifiable assumption, and he explains the multiplication of cancerous growths in the internal organs by the transportation of cancerous emboli — actual, detached fragments of living cancer cylinders — through the lymphatics or the veins. His paper is illustrated by several careful figures, evidently drawn from nature. The author was probably not acquainted with Cohnheim's discoveries, published a few months before. Certainly, in his account of the origin of the small-celled brood in the connective tissue between the cancer cylinders, he does not refer to the possibility that a part at least of the new elements might be wandering corpuscles.

In 1869 Dr. Karl Koester published at Würzburg the first part of a work on the development of carcinoma and sarcoma,* which next demands attention. Koester signalizes the fact that when in epithelial cancer of the skin large horizontal sections are prepared, the cancer cylinders are found to anastomose freely, forming a true net-work, which corresponds in form to the normal net-work of the lymphatics. By the action of nitrate of silver on fresh sections he was able to demonstrate the characteristic endothelium of the lymphatics on the surface of the cylinders in many places, while in others he obtained appearances which led him to believe that the cells of the cancer cylinders were produced by the multiplication of these endothelial cells.

The work of Koester, so far as published, was limited to the

*Die Entwicklung der Carcinome und Sarcome, von Dr. Karl Koester. Erste Abtheilung. Würzburg, 1869.

consideration of epithelial cancer of the skin, and alveolar colloid of the stomach, but he suggests the view that other forms of carcinoma and sarcoma have a similar origin. The consideration of these forms was postponed to subsequent parts of his work, which have not yet been published.

The opinion of Koester that the cells of the cancer cylinders are derived from the endothelium of the lymphatics has not been favorably received by the majority of histologists, and I believe pretty much every one who has tried the action of silver in cancer sections after the manner he directs has failed as yet to reproduce the appearances on which this portion of his doctrine is based. That the net-work of cancer cylinders corresponds to the lymphatic passages; that in fact the cylinders, whatever their origin may be, lie in the lymphatics and extend in them, appears to be more generally accepted, and I must avow that it is in strict accordance with all I have been able to observe.

In April, 1870, a paper entitled "A Contribution to the History of the Development of Carcinoma" was published in Virchow's Archiv* by Dr. A. Classen of Rostock. It was based on the study of a case of epithelial cancer of the cornea and sclerotic. It had occurred to the author that the cornea, which had already offered so excellent a field for the study of the inflammatory processes, was also especially suited for the study of the mode in which cancerous growths are developed. He arrived at conclusions very different from those of his predecessors. For him the cells of the cancer cylinders, and indeed all the new elements of cancerous growths, are no other than migrated white blood corpuscles escaped from the blood-vessels after the fashion first pointed out by Cohnheim.

He calls attention to the rich development of blood-vessels around cancerous growths, and to the comparative sluggishness

* Virchow's Archiv, Bd. 50, S. 56. Ueber ein Cancroid der Cornea und Sclera, ein Beitrag zur Entwicklungsgeschichte der Carcinome.

of the circulation in the tortuous veins, which in properly prepared sections are found, as might be expected, to contain great numbers of white corpuscles. The small-celled brood first appears in the connective tissue stroma immediately around the blood-vessels. Between these little lymphoid cells and the large epithelial forms of the cancer cylinders every transition can be observed. When we remember the structure of connective tissue, and the manner in which Von Recklinghausen has shown its little cavities and passages to open into the lymphatic capillaries, we shall not be surprised that it is in these, the nearest available cavities, that the new elements accumulate and develop into the cancer cylinders; for Classen agrees with Koester that the cylinders lie in the lumen of the lymphatics; he differs from him only as to the source of the component cells. As to the assertions of Thiersch and Waldeyer that the cancer cells are essentially epithelial elements, and therefore can only be the progeny of the horny layer of the embryo and of its derivatives, it appears to him a generalization which the facts do not justify. "I fear," he cries, "that in this way we shall attain a cellular mythology before we shall have a cellular pathology."

And here I pause for a moment to say, that in the latter part of the year 1871, my own study of thin sections led me to the conclusion that the migration of the white corpuscles played a great role in the development of cancerous growths, and that, at least in certain cases, the cancer cylinders were formed by the transformation of these corpuscles, which first accumulated in the lymphatic capillaries and the passages leading to them. In April, 1872, in a brief report published by the Surgeon General,* I advocated this view, though not so exclusively as Classen has done, for I could not avoid saying that I was not

* Report to the Surgeon General of the United States Army on the minute anatomy of two cases of cancer. By Assistant Surgeon J. J. Woodward, U. S. A. Washington, D. C., 1872.

prepared to deny "that transformations of the true gland tiss[illegible]e of the parts involved play a certain role in producing the te[illegible] ture of cancerous growths." But just how far the normal e[illegible] ments are atrophied and perish, and how far at times an [illegible]ll directed formative activity may lead to their monstrous develo[illegible]p- ment,—these are matters on which I said that it was diffic[illegible]lt at present to form a judgment.

At the time I wrote that report I had not yet read the pap[illegible]er of Classen. I ought to have read it, I know, for the numb[illegible]er of the journal containing it had passed through my hand[illegible]s. Still somehow it escaped me, and I did not come upon it till a month or two after the publication of my report. Now that I have carefully studied it I am more than ever impressed wit[illegible]th the importance of the part taken by migrating white corpuscl[illegible]es in the genesis of cancerous growths, but I get no help fro[illegible]m Classen with regard to the difficulty just indicated. The cas[illegible]se he so carefully describes is one of a growth in a non-glandula[illegible]ar part, and it leaves unsolved the question of the behavior of th[illegible] gland lobules when glands are the seat of the morbid growth[illegible]h

In June, 1872, Professor Waldeyer published in Virchow's[illegible] Archiv, a second article on the development of carcinoma,[illegible] in which, with all the light of recent discovery, and after [illegible] careful revision of the whole subject, he nevertheless substan[illegible] tially reaffirms the views of his first paper. He now admit[illegible] indeed that the elements of the small-celled brood are migrated[illegible] white corpuscles, and that Koester's view, that the cancer cyl[illegible]- inders lie in the lymphatic passages, is very often correct; but[illegible] he still holds firmly to the doctrine that the cylinders them[illegible]- selves are always outgrowths from some normal epithelial[illegible] structure with which they yet retain their connection. He[illegible] supports his opinion by many new and carefully described[illegible] details, and by a critical review of the modern literature of the subject. His paper is illustrated by a number of careful

* Virchow's Archiv, Bd. 55, S. 67. Die Entwicklung der Carcinome.

igures, evidently drawn after nature, and is in every way worthy of the most thoughtful consideration of the student of cancer.

Such, gentlemen, is an outline of the recent progress of our knowledge of the structure of cancerous growths, and of their relations to the surrounding parts. I have endeavored to seize and present for your consideration the most salient points. In so doing I have been compelled to omit all mention of many worthy investigators. Perhaps you will think I have already dwelt too long on this historical review, but before referring to my own observations I would beg to speak for a moment of the doctrines taught in two excellent German text-books, translations of which have recently been published in this country. I refer to the surgical pathology of Billroth,* and the pathological histology of Rindfleisch.†

Billroth, who has himself contributed no little to the details of our knowledge of morbid growths, adheres in all essential points to the views of Thiersch and Waldeyer; while Rindfleisch entertains opinions more nearly allied to those of Classen. Rindfleisch admits that perhaps, in cancers involving glands, the glandular epithelium may undergo fissiparous multiplication, and so contribute somewhat, though only, as he thinks, to a moderate extent, to the formation of the cancer cylinders. But he thinks that a far larger part is played by migrated white blood corpuscles, which, instead of being transformed into pus or connective tissue as in inflammation, accumulate in the lymphatic passages and are metamorphosed into epithelium-like elements. I commend these instructive and easily accessible works to your consideration, especially that of Rindfleisch; but I warn you that to read them with advantage you must do so by the side of the microscope.

* General Surgical Pathology and Therapeutics. By Dr. Theodor Billroth. American edition. New York, 1871.

† A Text-book of Pathological Histology. By Dr. Edward Rindfleisch. American edition. Philadelphia, 1872.

Turning now, from this survey of modern investigation into the structure of cancer, to my own observations, I have endeavored to select from the microscopical collection of the Museum a few instructive specimens to serve as the basis of my remarks. I have selected them from various parts of the body, for while all cancerous growths have certain anatomical points in common, which justify us in speaking of cancer as a particular form of disease, the peculiarities of individual growths, both as to structure and history, are largely modified by their seat.

The first group of illustrations I shall present are taken from a case of epithelial cancer of the larynx (No. 889, Medical Section, Army Medical Museum). This is a cauliflower growth which involved the posterior part of the tongue, the epiglottis and the upper part of the larynx. The patient, who was a discharged soldier, sixty-three years of age, had aphonia, pain in the larynx, obstructed respiration, hemorrhage from the growth, and died October 1, 1867, at the post hospital in this city. Thin sections showed that long, branching, vascular papillæ sprouted from the submucous connective tissue, and were clothed with a luxuriant epithelium, which filled the spaces between them, so that except towards the surface the whole formed a solid mass. The papillæ, having branched many times, appeared in profile in some parts of the sections, in other parts they were cut obliquely or transversely, giving rise to rounded or oval forms. Immediately next to the papillæ there was always a single layer of epithelial cells, more or less distinctly columnar in form, beyond which the cells were irregularly polygonal, and larger the more distant they were from the columnar layer.

Wherever adjacent papillæ were so related as to include spaces, the central epithelial cells were flattened, concentrically grouped, and presented striking examples of the so-called "globes epidermiques" or "pearly globules" so common in epithelial cancer.

The larger epithelial cells bore a striking resemblance to the deeper cells of the epithelium of the back part of the tongue. They had large oval nuclei, many of which were biscuit-formed, many contained two nuclei, but nowhere could clear evidence of actual cell multiplication having taken place be obtained.

In the deeper parts of the growth, the epithelial masses invaded the submucous tissue as thick, closely-arranged cell-cylinders. In these the peripheral cells, next to the connective tissue which separated them, were always columnar in character, the central ones polygonal, and in places concentrically grouped as pearly globules. (Six photographs, Nos. 1 to 6, shown and commented upon.)

The second group of illustrations are selected from a case of epithelial cancer of the leg. The patient, who was about forty-seven years of age, had suffered for a long time from a leg ulcer, which at length penetrated so deeply, and produced such destruction of tissue, that the limb was amputated just below the knee in March, 1871. The disease recurred in the cicatrix, and a second amputation, just above the middle of the thigh, was performed in January, 1872, since which the patient has remained apparently well.

Thin sections showed that long, branching and anastomosing cancer cylinders, connected with the cancerous mass, or with the sebaceous glands and rete-malpighii of the adjoining skin, invaded the sub-cutaneous connective tissue. These, in many places, were grotesquely swollen, and contained in their interiors the well-known "pearly globules." On examining the cylinders with high powers, the peripheral layer of cells immediately adjoining the connective tissue was found to resemble very much the cylindrical epithelium which forms the deepest layer of the normal rete-malpighii, except that they were as a rule a little shorter; the cells in the interior of the cylinders resembled those of the more superficial layers of the rete-malpighii, or even the flattened cells of the epidermis. In the

connective tissue between the cancer cylinders there was an abundant infiltration of small cells. (Nine photographs, Nos. 7 to 15, shown.)

In sections taken from some portions of the edges of this growth a very curious appearance was presented. A large meshed net-work in the deeper layer of the corium was continuous more superficially with narrow parallel anastomosing bands, which ran upwards towards the rete-malpighii, and, entering the papillæ of the corium, could be traced almost to their very apices. On one side this net-work was continuous with the margins of the cancerous growth. (Three photographs, Nos. 16 to 18, shown.)

On examining the bands with higher powers, they at first appeared to be composed of small cells held together by more or less fibrous tissue, but almost anywhere I could satisfy myself that the centre of each contained a blood-vessel, which in some places was found to be filled with white corpuscles. Just below the bases of the papillæ of the corium there was an abundant infiltration of small cells which somewhat obscured the net-work, but the bands could be traced through it, and were clearly continuous with the capillary blood-vessels in the centres of the papillæ.

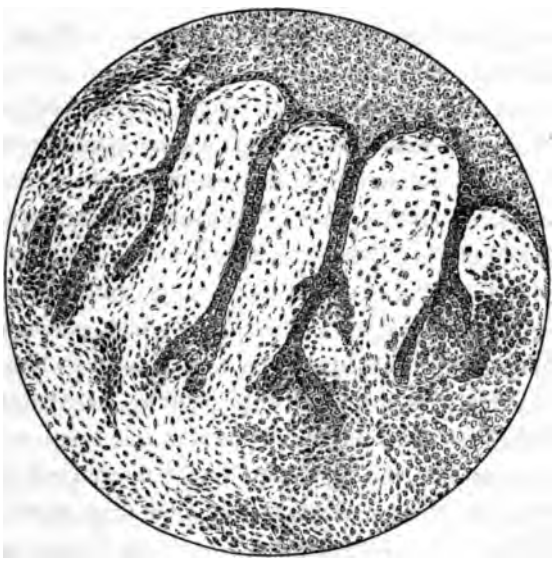
I greatly regret that, having received this specimen in alcohol, it was impossible to confirm the opinion expressed, by a fine injection; but I have no doubt that the form of this remarkable net-work was determined by a luxuriant development of blood-vessels at the edge of the ulcer, and that the innumerable small cells, found in all parts of the bands which composed the net-work, originally white blood corpuscles, were undergoing a transformation which would ultimately have converted the tissue involved into a portion of the cancer.

I call your attention next to two photographs from an epithelial cancer excised from the left forearm of a woman seventy-four years old. Most of the sections made from this

growth are so similar in their microscopical appearances to those obtained from the last, that it might be supposed they were taken from the same specimen. In parts of some of them, however, the terminal and growing extremities of the slender cancer cylinders are so fairly shown, that I have selected a portion of one of the sections for a couple of photographs.

In the place in question the small cells in the connective

Fig. 1.



Section of an epithelial cancer of the arm, showing the terminal buds of the cancer cylinders. From photo-micrograph No. 19. Magnified 116 diameters.

tissue, into which the cylinders are sprouting, are particularly abundant about the terminal buds. The cylinders themselves are very slender, appearing in section as merely a double row of somewhat quadrangular cells. The upper portion of the first photograph represents the rete-malpighii of the skin, so that the space between the upper parts of the cylinders represents, in fact, skin papillæ greatly swollen transversely. I

wish particularly to insist upon the luxuriant small-celled brood about the terminal buds, which is still better shown in the second photograph, in which a higher power has been used. (Two photographs, Nos. 19 and 20, shown.)

I draw my next illustration from a case of epithelial cancer of the lip, excised from a man about forty-five years of age. A smaller growth had been previously destroyed by caustic, but the disease had recurred in the cicatrix, and was removed by the knife in February, 1871.

The general anatomy of the morbid growth was that of an ordinary epithelial cancer, and I shall not go into its details; but some sections, cut at its edge parallel to the anterior surface of the lip and transversely through the hair follicles of the beard, are so instructive that I have made photographs from them.

These sections show that in the progress of the disease the sebaceous glands and the hair follicles are transformed into cancer tissue, but they show also that, for some distance beyond the point to which outgrowths, actually continuous with the cancer, can be traced, an infiltration of small cells, apparently corresponding in its distribution to the course of the blood-vessels, exists in the connective tissue between the hair follicles. It is difficult to resist the conviction that this small-celled infiltration represents the first step in the morbid process, and ultimately contributes its share to the building up of the cancerous mass. (Six photographs, Nos. 21 to 26, shown.)

I exhibit next a view of a section through the mucous membrane of the lip in the immediate vicinity of another epithelial cancer. On one side the preparation shows one of the labial glands in a nearly normal condition; those of the lobules of the next gland which are nearest the cancer are swollen, opaque and fused together; all the lobules of the next gland have undergone the same change; the next two glands are transformed into opaque cell masses in which no trace of the lobules can be discerned. These transformations of the gland tissue

are accompanied by an abundant small-celled infiltration of the surrounding connective tissue, the luxuriance of which keeps pace with the degree to which the glands are altered. (One photograph, No. 27, shown.)

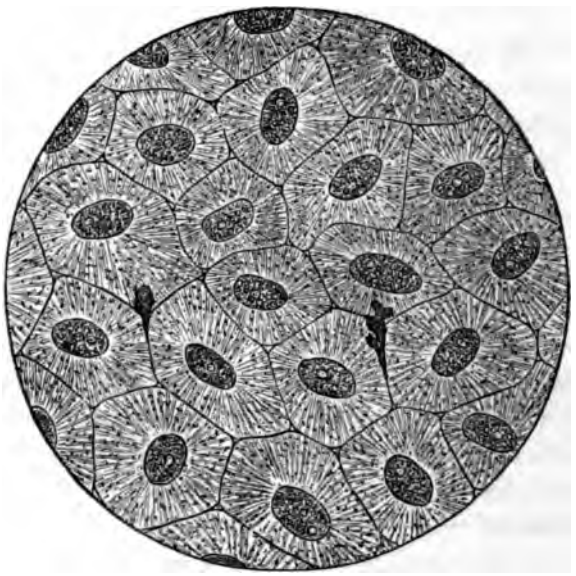
I trust the foregoing illustrations will enable you to follow me when I say that in epithelial cancers we have to do, on the one hand, with the ingrowing from previously existing epithelial structures of branching epithelial cylinders; on the other hand, with a small-celled infiltration of the connective tissue, the cells of which in all probability have migrated from the blood-vessels. All that I have been able to see inclines me to give my assent to the opinion that the cylinders lie in the lymphatic capillaries, or in distended lymph spaces; the small cells occupy the smaller lymph spaces of the connective tissue in which they are found. The preponderance of the fully formed cancer cylinders, or of the small-celled brood, determines considerable diversity in the details of different growths, and this is increased by the circumstance that in some cases the connective tissue papillæ of the part involved grow outward, and branch as in the first case I presented to you. I cannot pause here even to sketch the varieties thus produced, but I wish to add that I am not prepared to agree with Billroth that Thiersch and Waldeyer were right in regarding it as fully established that the cancer cylinders grow by a multiplication of their epithelial elements by division. On the contrary I wish to draw attention not merely to the fact of the swarm of small cells about the terminal buds of the cylinders, but to the additional circumstance that, in almost every section of epithelial cancer in the Museum collection, I find among the epithelial cells numerous unmistakable wandering corpuscles, often fixed by the reagents used, with their processes extended as in the act of migration.

If Biesiadecki* is right in believing that the ordinary growth

* Rindfleisch, *op. cit.*, p. 101.

of epithelial tissues is effected, not by cell multiplication, but by these wandering corpuscles becoming fixed and developing into epithelial cells, we shall readily understand the significance of this circumstance. But be this as it may I cannot doubt that, in many cases at least, besides the continuous epithelial outgrowth, however that may be effected, a portion of the small-celled brood accumulating in the lymphatic passages

Fig. 2.



Two wandering corpuscles among the epithelial cells of an epithelial cancer. From the same preparation as photo-micrograph No. 29. Magnified 600 diameters.

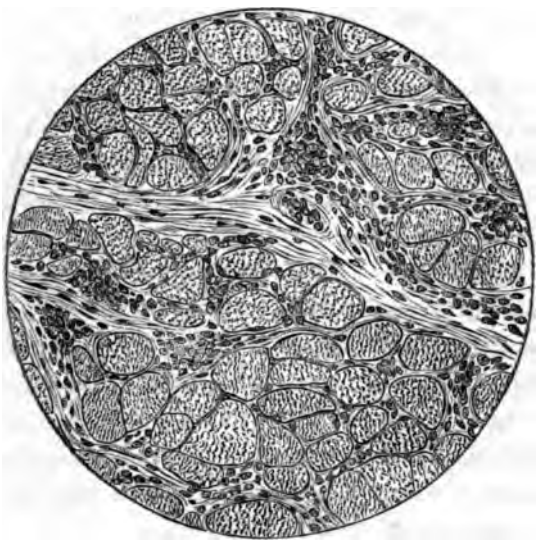
undergoes a transformation into epithelial forms, and thus contributes its share to the growth of the cancer. (Two photographs, Nos. 28 and 29, shown.)

Before passing from this part of the subject I desire to call your attention to a couple of photographs taken from an epithelial cancer of the lip, which illustrate the manner in which such growths, when they penetrate deeply, invade the voluntary muscles. In such cases, if the section is taken transversely to the

course of the muscular fibres, the first change observed is a small-celled infiltration between the fibres, which remain quite intact, and this accumulation progresses, pushing the fibres more and more apart. (Two photographs, Nos. 30 and 31, shown.)

This condition is not peculiar to the muscles in the neighborhood of skin cancers. I have observed it in the neighborhood of cancers of the mammary gland, and of many other

Fig. 3.



Transverse section of muscle near a cancer, showing the small-celled infiltration between the muscular fibres. From photo-micrograph No. 30. Magnified 200 diameters.

parts. If the section be made parallel to the course of the muscular fibres the images obtained are not so readily understood. In such sections we not merely see the cell-infiltration between the fibres, but similar cells above and below individual fibres may readily be supposed to be embedded in their substance, as seen in the next photograph, which is taken from the vicinity of a medullary cancer of the parotid gland. (One photograph, No. 32, shown.)

Now I will not affirm that such mistakes account for the opinions of those who believe that a proliferation of the nuclei of the muscular fibres contributes to the cancerous mass; but I point it out as a possible source of error, and must admit that most generally the cell infiltration between the fibres accumulates to such an extent, before the latter undergo any noteworthy alteration, that it is difficult to trace their ultimate fate.

I invite your attention next to a series of illustrations of growths situated in the female breast.

The first group are taken from a tumor of the right breast, weighing over five pounds, which was removed in November, 1870, from the breast of an apparently healthy young woman. (Surgical section, No. 5734.) The tumor had grown rapidly, was freely movable, and there was no retraction of the nipple. Seen quite recently the patient was apparently in good health, and there has been as yet no recurrence.

When received fresh at the Museum the tumor, on section, was pinkish gray, semi-translucent, and yielded an abundant transparent albuminous juice in which but few cellular elements could be detected. On microscopical examination it proved to be made up of nearly normal gland-ducts and gland-vesicles pushed well apart by a luxuriantly developed connective tissue stroma, through which numerous small cells were scattered. (Four photographs, Nos. 33 to 36, shown.)

Such growths have been called adenoma by some, sarcoma by others, and have been ranked among non-malignant tumors. Sometimes they affect a small portion of the gland only, at other times the greater part, or the whole. With the former group of cases I have had little personal experience; as to the latter, I well remember a case quite similar to this, though in an older patient, which I described in 1859, in the American Journal of the Medical Sciences,* and supposed, at the time, to be non-malignant. Nevertheless it speedily returned

* Vol. 37, New Series, p. 67.

in the cicatrix and destroyed the patient.* The secondary growths had no doubtful anatomy. Billroth† insists on the importance of an early removal of such growths and points out their proneness to undergo a cancerous transformation if they are permitted to remain, and to recur with cancerous characteristics if they are removed too late; while acknowledging the justice of his observations I am disposed to go even still farther in my appreciation of their relation to ordinary cancers.

I next draw your attention to some views from a case of cancer of the left breast, removed in March, 1871. The patient was about forty-five years old, and the tumor had been growing a little over a year, having first made its appearance shortly after an injury to the breast received by falling against the corner of a table. It had attained about the size of a hen's egg at the time of removal. Eighteen months after the operation the patient was still apparently in good health.

In this case portions of the growth presented the ordinary anatomy of scirrhus of the breast, but other portions were in a condition very similar to that described in the last case, except that many of the gland vesicles were dilated into cysts. In numerous places the same milk-duct led to groups of vesicles apparently belonging to the same lobule, some of which were nearly normal, while others had undergone the cystic transformation. Both normal vesicles and cysts were pushed apart by a luxuriant connective tissue, infiltrated with small cells. (Five photographs, Nos. 37 to 41, shown.)

Such a growth would be called cysto-sarcoma if the whole tumor had the structure represented in these photographs, but a large part of it had the ordinary anatomy of scirrhus, and I call attention to the significance of the association of the two lesions in the same breast.

The transformation of some of the vesicles of the mammary

* *Loc. cit.*, vol. 39, p. 331.
† *Op. cit.*, p. 606.

gland into cysts is an exceedingly frequent occurrence in cancers of the breast, and I exhibit illustrations taken from two other cases. (Three photographs, Nos. 42 to 44, shown.)

I have spoken of the ordinary anatomy of scirrhus of the breast. This has been so frequently described that it must be familiar to you all. A stroma of connective tissue encloses alveoli or spaces which are stuffed with larger or smaller, more or less irregular cells. I wish particularly, however, to insist upon the point that these alveoli are not blind cavities, but communicate with each other so as to form a net-work. The net-work is best seen as such at the peripheral portions of the growth, but it can frequently be made out with more or less distinctness in all parts. The cells which compose it are often deficient in the distinct cell-wall which we recognize in many parts at least of epithelial cancers; they are rather to be described as little masses of protoplasm, with nuclei embedded, and the branching cylinders which we found no difficulty in describing as cell-cylinders in epithelial cancer, are here, very often at least, best described as "nucleated cylinders."

Two cancerous tumors of the breast, made up almost wholly of a net-work of such nucleated cylinders lying in an abundant stroma of connective tissue, were described by me in a report to the Surgeon General, to which I have already referred.* I exhibit a photograph from one of these growths. (One photograph, No. 45, shown.)

The other case mentioned in the report was particularly interesting because after the extirpation of the right breast another tumor formed in the left, and the disease subsequently generalized itself, secondary tumors appearing in the liver, the spleen and the ovaries.

In both the liver and the spleen the secondary tumors were very small; smallest in the liver, in which they varied from the size of a pea to that of a pin's head. They were com-

*See note on page 11, *supra*.

posed of a net-work of nucleated cancer cylinders lying in a connective tissue stroma as shown in the next photograph, which represents one of the nodules in the liver, in which some of the cylinders are cut transversely across. (One photograph, No. 46, shown.)

The ovaries were transformed into oval nodulated scirrhus masses about an inch and three-quarters in long diameter, and

Fig. 4.

Section of mammary cancer, showing branching nucleated cylinders. From the same preparation as photo-micrograph No. 45. Magnified 400 diameters.

these also were composed of similar cylinders embedded in a connective tissue stroma. (One photograph, No. 47, shown.)

I add here two additional representations of the nucleated cylinders in cancers of the breast. The first is taken from a tumor which was extirpated in September, 1869. The woman was forty-three years of age. The disease reappeared in the cicatrix, and was again extirpated in May, 1870. It again recurred in July, 1870, and terminated fatally in June, 1871;

secondary growths were found after death in the stomach and spleen. The case is described in detail in Circular No. 3.* The photograph gives side views of several of the nucleated cylinders, and of the connective tissue between them. (One photograph, No. 48, shown.)

The other photograph is taken from a scirrhus of the breast, extirpated in March, 1871, the subsequent history of which is unknown. (Surgical section, Army Medical Museum, No. 5903.) The cylinders are narrow as compared with those shown in the last picture. (One photograph, No. 49, shown.)

Towards the margins of a growing mammary cancer it is not uncommon for the cylinders to be so slender and so tortuous as to appear in thin sections like small elongated cell groups, such as have been supposed to originate in the proliferation of the connective tissue corpuscles. A comparison of a number of adjacent sections will show their real nature. Two views, taken from one of the breasts described in my report to the Surgeon General, will serve to illustrate this point. (Two photographs, Nos. 50 and 51, shown.)

In the case of cancer of the breast, as we have already seen in epithelial cancers, there may be three explanations of the genesis of the cancer cylinders, so far at least as they are new formations. Either they are outgrowths from the epithelium of the ducts and vesicles of the diseased gland, or they originate by the transformation of the small-celled infiltration, which here, as in skin cancers, is conspicuous in the connective tissue stroma, or both these processes may contribute. A decision between these possibilities is still more difficult than in the case of skin cancers. In attempting the solution of the question it is important to observe the behavior of the gland-ducts and vesicles themselves in growing cancers, and to endeavor to ascertain the transformations they undergo. Some of the photographs shown this evening illustrate at least one of these

* Circular No. 3, Surgeon General's Office, 1871, p. 206.

transformations about which there can be no question, namely, the occasional conversion of the gland vesicles into cysts. But there is another alteration in those of the gland vesicles which are most nearly normal, that can be seen in the sections from which these photographs were taken, and that has been shown in one or two of the photographs; namely, an increased number of epithelial cells in the interior of the vesicles, so that they form several layers, instead of one, which is all that exists in the normal vesicle.* I am inclined to believe that this increase of the number of the epithelial elements may go on until the vesicles and ducts are so distended by them as to form in fact a portion of the cancer cylinders. Whether the increase is due to cell multiplication or to the interpellation of wandering white corpuscles must remain for the present an open question; at all events I find it impossible to admit that the majority of the cancer cylinders have originated either in this way or by the outgrowth of buds from those thus formed. On the contrary the study of the marginal portions of growing breast-cancers inclines me more and more to the opinion that the small-celled brood, accumulating in the lymph spaces, is transformed into cancer cylinders. That this takes place even in skin cancers I have endeavored to show, and it appears to me that the process plays even a more important role in cancers of the breast, forming probably the greater part of tumors which have attained any considerable size, and the whole of those which develop as secondary growths after the complete extirpation of the gland for cancerous disease.

A study of the mode in which cancers of the breast invade the adjacent fat is very suggestive in this connection, and I will give a short account of the process as I have observed it. The outgrowth takes place in two ways—on the one hand the process involves the fat immediately adjoining the carcinoma-

*Stricker's Manual of Histology. American edition, p. 577.

tous mass; on the other hand a small-celled infiltration extends much farther from the main group along the course of the blood-vessels.

In the first instance an infiltration of small cells makes its appearance between the fat cells, accompanied by an increase in the quantity of the matrix by which they are held together. The structural conditions to be observed are precisely the same as may be seen in ordinary inflammation of adipose tissue. In a report on the pleuro-pneumonia of cattle made in June, 1870, and subsequently published by the Commissioner of Agriculture,* I described some sections of the inflamed adipose tissue about the pericardium, taken from a case of that disease in which the appearances were precisely what I have just described, and the photo-micrograph which accompanied the report, but for the somewhat greater size of the fat cells represented, might be supposed to have been taken from the vicinity of a cancerous breast. It is not in its beginning, but in the subsequent history of the small-celled infiltration between the fat cells in cancer, that it differs from the similar small-celled infiltration in inflammation. There is no difficulty in making out this subsequent history in many of the sections belonging to the Museum. The small cells infiltrated between the fat cells increase in number and size, the fat cells themselves are pushed more and more apart, are more and more encroached upon by the morbid growth, and finally disappear without seeming to have contributed anything to the new formation which has replaced them.

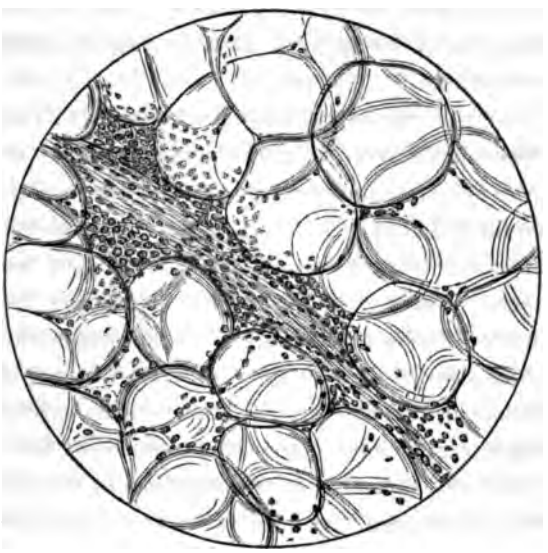
Where the small-celled infiltration has extended from the growth, in the course of the blood-vessels, it appears to occupy primarily the walls of the small veins and the spaces between the immediately adjacent fat cells. In these spaces the behavior of the infiltration is identical with what I have just de-

*Report of the Commissioner of Agriculture on the Diseases of Cattle in the United States. Government Printing Office, 1871, p. 64.

scribed. I find in the whole process conclusive proof that the small-celled infiltration between the fat cells is ultimately transformed into a net-work of cancer cylinders. (Seven photographs, Nos. 52 to 58, shown.)

I call attention next to a few illustrations drawn from a couple of cases of cancer of the stomach. We have already seen that Waldeyer derives cancer of the stomach from the tubular glands of the mucous membrane; from the bottoms of

Fig. 5.



Small-celled infiltration in the course of a minute vein and between the fat cells in the neighborhood of a mammary cancer. From photo-micrograph No. 54. Magnified 200 diameters.

these the cancer cylinders sprout, pass through the submucous connective tissue, invade the muscular coat, and having penetrated this, involve the adjacent parts.

Now all that I have seen of these growths leads me to admit that their primary seat is in the mucous membrane and the subjacent connective tissue; but the determination of the precise origin of the cancer cylinders is surrounded by the

same difficulties which we encountered in the case of cancer of the breast.

The first series of illustrations is drawn from a case of cancer of the pylorus, taken from a man aged thirty-eight, who died in Providence Hospital, in March, 1871. (Medical Section, Army Medical Museum, No. 1079.) The growth assumed the form of a moderate carcinomatous thickening of the walls of the stomach for several inches around the pyloric orifice; the inner surface of the diseased part presenting a superficial area of ulceration near the pylorus, while on the exterior an irregular mass, about an inch in diameter, invaded the gastro-hepatic omentum.

Sections taken from the marginal portions of this carcinomatous thickening showed numerous branching and anastomosing cancer cylinders in the submucous connective tissue, which, between the cylinders, was infiltrated with numerous small cells, the infiltration being most luxuriant just below the mucous membrane. These cylinders in the submucous tissue were continuous with other larger ones in the muscular coat and the submucous adipose tissue. In all of them the peripheral cells were columnar in character, and bore a coarse resemblance to the columnar epithelium of the tubular glands of the stomach; but within these columnar cells, the cylinders were completely filled with polygonal irregular cells, and none of them, as I thought, had any interior free space or lumen; simply as the cells of the interior were not very firmly interadherent they readily fell out of their places from the larger cylinders when thin sections were made, and thus the appearance of tubes lined by an epithelium was simulated. I cannot but note also that the general form and arrangement of the cylinders in the muscular coat, at least, were strikingly similar to what injections teach us of the mode in which the lymphatic network is distributed in this region. (Six photographs, Nos. 59 to 64, shown.)

I add a couple of illustrations from a larger and more luxuriant growth of the same region. The patient was a man aged forty-three, who died in Providence Hospital, in April, 1871, after an illness of about two years. (See Medical Section, Army Medical Museum, No. 1091.) At first the symptoms were those of indigestion, then obstinate vomiting set in, finally a tumor could be felt in the epigastric region, the disease was recognized, and ran its usual course.

The pyloric half of the stomach was involved in the morbid growth, which presented itself as an irregularly lobulated thickening and induration of the coats, in places an inch in thickness. The stomach was adherent to the liver, into the substance of which the carcinomatous infiltration extended, and between the two the mass had softened, forming an abscess-like cavity which communicated with the interior of the stomach by an ulcerated opening through which the fluid contents of the cavity had escaped. The pyloric orifice itself was not much thickened.

Now the structure of the thickened stomach in this case was almost precisely like that of the last, except that the cylinders were as a rule larger, and that there was an abundant small-celled infiltration between the fibre-cells of the muscular coat. (Two photographs, Nos. 65 and 66, shown.)

These two growths represent, so far as I am at present informed, the most common type of cancer of the stomach, and if you picture in your minds the condition which would result if fluid should accumulate in some of the cylinders of such a growth, distending them into cyst-like forms, you would have a correct idea of a somewhat rarer form of cancer of the stomach described in the books, of which, however, we have as yet no example in the microscopical collection of the Museum.

The last case to which I shall call your attention is one of primary cancer of the ovary which illustrates this very point of cystic development. The patient was supposed to be suf-

fering from an ovarian cyst, the removal of which was attempted in October, 1871. (Surgical Section, Army Medical Museum, No. 5944.) On opening the abdominal cavity a medullary cancer of the ovary, of brain-like consistency, was discovered and partially removed. The patient died shortly after.

Sections showed the growth to be made up of a net-work of large cancer cylinders held together by a comparatively scanty connective tissue; many of them were dilated at intervals so as to resemble irregularly oval cysts. They were lined by a layer of polygonal cells which might be compared to an epithelium, and their cavities were filled with an albuminous fluid from which the action of the alcohol used to harden the preparation condensed spherical, somewhat yellowish, semi-transparent bodies of obscure nature. (Three photographs, Nos. 67 to 69, shown.)

Now if in such a growth as this the cystic dilatations, and the epithelium-like lining of the cancer cylinders suggest the idea that they might be transformed Graafian follicles, I must remind you of the other ovarian cancer of which I have already shown you a representation, in which the small size of the nucleated cylinders and the absence of any lumen would seem to exclude such a possibility.

I feel that I should be trespassing upon your patience if I were to continue to multiply individual examples, but I ought not to forget to remind you that the cells of the cancer cylinders may undergo the most varied transformations and degenerations, which aid in making up the complex picture presented by cancerous growths as they actually occur. The cells may increase in size till often, in mammary cancer for example, they rival the larger forms which occur in cancers of the skin. It is from portions of such tumors, in which the cells of the cancer cylinders have grown, till on section the cylinders appear like irregular alveoli of variable size filled with large ir-

regular cells with large nuclei, that the older descriptions of scirrhus and medullary cancer, so familiar to you all, were drawn, and I wish you to remember that these descriptions were true to nature so far as they went. Simply you must understand that growths are none the less cancerous which are extirpated before this later stage has set in. My last illustrations represent sections of the interior portion of a medullary cancer, and some cells scraped from the surface of a well advanced scirrhus, which may serve as samples of the large cell forms referred to, which are in fact what the older writers described as cancer cells. (Five photographs, Nos. 70 to 74, shown.)

If now I recur, as I promised to do, to the question of diagnosis, I think you will understand, without any detailed repetition of the descriptions I have given, that in the present state of our knowledge, we ought, on anatomical grounds, to call any growth a cancer, at the margins of which we find the nucleated or cell cylinders I have described, associated with the infiltration of small cells in the intervening connective tissue. It is not necessary to wait till the cells of the cylinders have acquired any great size in order to arrive at an opinion. It is necessary, however, to cut sections of considerable dimensions, and to prepare them suitably for satisfactory microscopical study; and this requires of course a reasonable amount of practice, while the profitable study of the sections, when prepared, presupposes a practical acquaintance with modern normal and pathological histology.

And at this point the important question of prognosis thrusts itself again upon our attention. Can we be sure that a growth which has the anatomy of cancer will have the history that is usually indicated by the word malignant; that it will ulcerate if left to itself; that it will recur if extirpated; that in either case similar growths will develop in some of the internal organs; and that the patient will surely die from this cause, if not

from the primary disease? On the other hand if a tumor be extirpated which does not possess the anatomy of cancer; in which no proper cancer cylinders have been formed; as for example in the first case of mammary tumor to which I alluded this evening, can we be sure that the growth would not have ultimately acquired the cancerous anatomy if it had been let alone? Can we be sure that it will not, in spite of its timely extirpation, recur and prove fatal?

A proper discussion of these important questions, based upon a consideration of all the evidence, would require much time and thought and be a work of no small labor and difficulty. Of course it cannot be undertaken in the present lecture. Nevertheless it may not be amiss to state that the general tenor of surgical experience would seem to give a negative answer to both these important questions. With regard to the first, the negative answer is the justification of the operation of extirpation, still so generally resorted to, and the motive for urging operative interference as early as possible. It implies a more or less confident belief in the local significance of the primary lesion, and it is not inconsistent with the circumstance that practically the majority of tumors, which on extirpation prove to have the anatomy of cancer, do in fact recur, for the incomplete extirpation of marginal portions of the primary growth, or the existence already at the time of the operation of small secondary growths in distant organs, will sufficiently account for this result, without any more violent supposition.

On the other hand the negative answer to the second question might have been anticipated on purely anatomical grounds, since it would seem that in every cancer there must be a period when the small-celled infiltration of the connective tissue, and perhaps some increase in the number of the epithelial elements of any glandular part involved, is all that has taken place, and whenever this process commences simultane-

usly in a comparatively large area instead of in a small one – in the whole mammary gland for example instead of in a mall part of it — the size of a tumor may lead to its extirpa-ion before its anatomy has become characteristic.

But a further consideration of these interesting and impor-ant questions would be foreign to my present purpose. I have nly wished to-night to present the subject from the anatomical oint of view, and if after what I have said you are left with ie impression that even our anatomical knowledge of the sub-ct is still far from complete, you will the more readily agree ith me when I express the opinion that so far from this branch f the inquiry having been exhausted, additional investigations re urgently needed and ought by all means to be encouraged.

As for the more ambitious efforts to combine together the natomical facts and the clinical phenomena, so far as either re known, and to frame a comprehensive theory which shall nbrace the whole, we must for the present regard them as mewhat premature; but it is a hopeful sign that even in such peculations the mythical notions of specific dyscrasiæ and eterologous new formations are being dropped more and more ut of sight, and that we are learning more and more to en-eavor to explain even the most aberrant phenomena of such disease as cancer by the ordinary normal laws of develop-ient and growth.

LIST OF PHOTO-MICROGRAPHS

EXHIBITED DURING THE LECTURE.

No. 1. Section of epithelial cancer of larnyx. (From No. 2277 Microscopical Section, Army Medical Museum.) Magnified 35 diameters.

No. 2. Same preparation as No. 1, showing a papilla cut across. 200 diameters.

No. 3. Same preparation as No. 1, showing a papilla cut lengthwise, 200 diameters.

No. 4. Same preparation as No. 1, showing a small "globule epidermique." 200 diameters.

No. 5. Same preparation as No. 1, showing a large "globule epidermique." 200 diameters.

No. 6. Same preparation as No. 1, showing two cancer cylinders. 200 diameters.

No. 7. Section of epithelial cancer of leg (No. 4700 Mic. Sec.), showing narrow cancer cylinders and "globules epidermiques." 35 diameters.

No. 8. Same preparation as No. 7, showing cancer cylinders and diseased sebaceous glands. 35 diameters.

No. 9. Same preparation as No. 7, showing cancer cylinders and "globules epidermiques" connected with a sebaceous gland. 35 diameters.

No. 10. Another photograph from the same tumor as Nos. 7, 8 and 9 (No. 4650 Mic. Sec.), showing "globules epidermiques." 35 diameters.

No. 11. Same preparation as No. 7, showing "globules epidermiques," from the centres of some of which the globules have dropped out. 35 diameters.

No. 12. Same preparation as No. 7, showing narrow cancer cylinders. 200 diameters.

No. 13. Same preparation as No. 7, showing a "globule epidermique." 200 diameters.

No. 14. Same preparation as No. 7, showing the terminations of cancer cylinders. 200 diameters.

No. 15. A view somewhat similar to No. 14, from another section of the same tumor (No. 4646 Mic. Sec.). 200 diameters.

No. 16. Another section of the same tumor as Nos. 7 to 15, showing a net-work of bands on the margin of the cancer (No. 4655 Mic. Sec.). 13 diameters.

No. 17. The lower portion of the view given in No. 16. 35 diameters.

No. 18. The upper portion of the view given in No. 16. 35 diameters.

No. 19. Section of an epithelial cancer of the arm (No. 5880 Mic. Sec.), showing the terminal buds of the cancer cylinders. 110 diameters.

No. 20. A portion of the view given in No. 19. 200 diameters.

No. 21. Section of an epithelial cancer of the lip (No. 3713 Mic. Sec.), showing small-celled infiltration between the hair follicles beyond the margins of the cancer. 13 diameters.

No. 22. Another similar section from the same tumor as No. 21 (No. 3713 Mic. Sec.). 13 diameters.

No. 23. Another view of the same preparation as No. 22, showing the relation of the small-celled infiltration to the sebaceous glands. 35 diameters.

No. 24. Another view of the same preparation as No. 21, showing the relation of the small-celled infiltration to the hair follicles. 35 diameters.

No. 25. Another view from the same case as Nos. 21 to 24 (No. 3726 Mic. Sec.), showing the small-celled infiltration around a hair follicle. 110 diameters.

No. 26. A similar view to No. 25, from another part of the same preparation. 110 diameters.

No. 27. Epithelial cancer of the lip (No. 4750 Mic. Sec.), slice near the edge of the tumor, showing diseased labial glands. 13 diameters.

No. 28. Wandering corpuscles among epithelial cells in an epithelial cancer (No. 5881 Mic. Sec.). 500 diameters.

No. 29. A similar view from the same preparation as No. 28. 500 diameters.

No. 30. Invasion of muscle by cancer, transverse section (No. 5862 Mic. Sec.). 200 diameters.

No. 31. Another view of the same preparation as No. 30. 200 diameters.

No. 32. Invasion of muscle by cancer, longitudinal section (No. 3692 Mic. Sec.). 200 diameters.

No. 33. Tumor of the female breast (No. 3852 Mic. Sec.). Gland ducts and vesicles pushed apart by a stroma of connective tissue. 35 diameters.

No. 34. Another view of the same preparation as No. 33. 35 diameters.

No. 35. A portion of the view given by No. 33. 110 diameters.

No. 36. A portion of another section of the same tumor as No. 33 (No. 3851 Mic. Sec.), showing the connective tissue stroma, etc., with a higher power. 200 diameters.

No. 37. Cysto-carcinoma of the female breast (No. 5613 Mic. Sec.). 35 diameters.

No. 38. Another part of the same section as No. 37. 35 diameters.

No. 39. Portion of same view as No. 38. 110 diameters.
No. 40. Portion of same view as No. 39. 200 diameters.
No. 41. Portion of same view as No. 37. 200 diameters.
No. 42. Cancer of breast with cysts (No. 4023 Mic. Sec.). 35 diameters.
No. 43. Cancer of breast with cysts (No. 2398 Mic. Sec.). 35 diameters.
No. 44. Another view from the same case as No. 43 (No. 3373 Mic. Sec.). 35 diameters.
No. 45. Cancer of breast (No. 3489 Mic. Sec.), showing branching nucleated cylinders. 200 diameters.
No. 46. Cancer of liver (No. 2393 Mic. Sec.), showing nucleated cylinders cut across. 200 diameters.
No. 47. Cancer of ovary (No. 2452 Mic. Sec.), showing nucleated cylinders cut across. 200 diameters.
No. 48. Cancer of breast (No. 3519 Mic. Sec.), showing side view of nucleated cylinders. 200 diameters.
No. 49. Cancer of breast (No. 4516 Mic. Sec.), showing side view of nucleated cylinders. 200 diameters.
No. 50. Cancer of breast (No. 4631 Mic. Sec.), showing apparent cell multiplication. 200 diameters.
No. 51. Cancer of breast (No. 4630 Mic. Sec.), showing apparent cell multiplication. 200 diameters.
No. 52. Cancer of breast (No. 4512 Mic. Sec.), showing the invasion of the adjacent adipose tissue. 35 diameters.
No. 53. Cancer of breast (No. 4951 Mic. Sec.), showing the invasion of the adjacent adipose tissue. 35 diameters.
No. 54. Portion of the same section as No. 53. 200 diameters.
No. 55. Another portion of the same section as No. 53. 200 diameters.
No. 56. Cancer of the breast (No. 3650 Mic. Sec.), showing the invasion of adipose tissue. 200 diameters.
No. 57. Another portion of the same section as No. 56. 200 diameters.
No. 58. Portion of the same section as No. 52. 200 diameters.
No. 59. Perpendicular section of cancer of stomach (No. 4504 Mic. Sec.). 13 diameters.
No. 60. Portion of the same view as No. 59. 35 diameters.
No. 61. Another section from the same tumor as Nos. 59 and 60 (No. 4508 Mic. Sec.). 13 diameters.
No. 62. Portion of same view as No. 61. 35 diameters.
No. 63. Portion of same view as No. 62. 110 diameters.
No. 64. Portion of same view as No. 63. 200 diameters.
No. 65. Perpendicular section through the muscular coat of a cancerous stomach (No. 4715 Mic. Sec.). 35 diameters.
No. 66. Portion of the same view as No. 65. 110 diameters.
No. 67. Cysto-carcinoma of ovary (No. 4699 Mic. Sec.). 110 diameters.

No. 68. Another view of the same section as No. 67. 110 diameters.
No. 69. Portion of same view as No. 68. 200 diameters.
No. 70. Section of medullary cancer of parotid (No. 5907 Mic. Sec.) 200 diameters.
No. 71. Another view of the same section as No. 70. 200 diameters.
No. 72. Group of so-called cancer cells. 500 diameters.
No. 73. Group of so-called cancer cells. 500 diameters.
No. 74. Group of so-called cancer cells. 500 diameters.

SMITHSONIAN MISCELLANEOUS COLLECTIONS.
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THE TONER LECTURES

INSTITUTED TO ENCOURAGE THE DISCOVERY OF NEW TRUTHS FOR THE ADVANCEMENT OF MEDICINE.

LECTURE II.

DUAL CHARACTER OF THE BRAIN.

BY
C. E. BROWN-SÉQUARD, M.D.

DELIVERED APRIL 22, 1874.

WASHINGTON:
SMITHSONIAN INSTITUTION.
JANUARY, 1877.

ADVERTISEMENT.

THE "Toner Lectures" have been instituted at Washington, D. C., by Joseph M. Toner, M.D., who has placed in charge of a Board of Trustees, consisting of the Secretary of the Smithsonian Institution, the Surgeon-General of the United States Army, the Surgeon-General of the United States Navy, and the President of the Medical Society of the District of Columbia, a fund, "the interest of which is to be applied for at least two annual memoirs or essays relative to some branch of medical science, and containing some new truth fully established by experiment or observation."

As these lectures are intended to increase and diffuse knowledge, they have been accepted for publication by the Smithsonian Institution in its "Miscellaneous Collections."

The FIRST LECTURE of this series was delivered March 28, 1873, by Dr. J. J. WOODWARD, "On the Structure of Cancerous Tumors and the Mode in which adjacent parts are invaded." Published by the Smithsonian Institution, November, 1873. 44 pp. 8vo.

The SECOND LECTURE was delivered April 22, 1874, by Dr. C. E. BROWN-SÉQUARD, on the "Dual Character of the Brain," from a phonographic report of which the lecture has been printed. On account of absence from the country the author has not had the opportunity of revising the lecture or of correcting the proofs.

The THIRD LECTURE was delivered May 14, 1874, by Dr. J. M. DA COSTA, on "Strain and Over-Action of the Heart." Published by the Institution, August, 1874. 32 pp. 8vo.

The FOURTH LECTURE was delivered January 20, 1875, by Dr. HORATIO C. WOOD, on "A Study of the Nature and Mechanism of Fever." Published by the Institution, February, 1875, 48 pp. 8vo.

JOSEPH HENRY,
Secretary Smithsonian Institution.

SMITHSONIAN INSTITUTION,
Washington, January, 1877.

LECTURE II.

Delivered April 22, 1874.

DUAL CHARACTER OF THE BRAIN.

By C. E. Brown-Séquard, M.D.

Gentlemen: I have to-day to put forward views which, if they have the value that I attach to them, deserve all your attention. I confess, however, that although I have come to a conviction myself (and I am, perhaps, rather difficult to satisfy in this respect), I do not accept as proved all that is drawn from facts. I confess, also, that I feel great embarrassment, since not only are the facts I have to present new, and not, perhaps, easily to be accepted, but besides, they require for their full understanding a knowledge of medicine, which probably does not exist among many of my hearers. I will, however, try my best to render the subject as clear as possible, even to persons who know nothing of medicine.

As you perhaps know, the subject is this, putting it in an interrogative form, Have we two brains or one? And if we have two brains, why not educate both of them?

As you will see by these questions, if the first is decided negatively, of course there is no reason for discussing the second. The very fact, therefore, that I am in your presence to speak about an hour on this subject, implies that I have come to the conclusion that we have two brains, perfectly distinct the one from the other. There are, however, views held in science on this subject different from mine. They consist in considering the left side of the brain as the exclusive organ serving to the movement and feeling of the right side of the body, and

vice versa, the right side of the brain being one only organ serving for volition and sensation for the left side of the body. This view I will have first to disprove.

Beginning, however, with what relates to the noblest functions of the brain—that is, its capability to serve in mental phenomena—I shall say at once that I am not the first to put forward the view that we have two brains. Long ago Sir Henry Holland, and Dr. Wigan,[1] and a few others, insisted on the fact that each side of the brain is perfectly sufficient for the full performance of the mental functions. But they stopped there, and they have, therefore, left to others to go further. In regard to this I may say, if we adopt the view, that we have two brains, a conclusion will follow, which—although I shall have to speak of it more at length by and by—I must now allude to. It is quite certain that if we make use of only one brain for most of our actions, we leave inactive one-half of the total mass of brain matter, and, therefore, we leave quite useless one-half of the most important of our organs as regards manifestations of intelligence, will, and perception or sensation. If this conclusion is correct, you will easily understand how important it is to come to the point which I have in view in this lecture; that is, that we ought to give education to the two sides of the brain, or, rather, to the two brains.

As regards intelligence, it is hardly necessary to insist, after what has been said by the physiologists, Sir Henry Holland and Dr. Wigan. They both show that there are a great many facts which would seem to prove that either half of the brain may equally perform intellectual functions. It may be, however, that their proofs were not sufficient.

Dr. Wigan has insisted upon a feature of great interest, which is that in cases of insanity sometimes, and I may say

[1] The Duality of the Mind Proved by the Structure, Functions, and Diseases of the Brain, by A. L. Wigan, 8vo., London, 1844.

very frequently without any insanity, we have two different views on the same subject. There are a great many people who labor through life under the difficulty of being unable to make up their minds. It is because they have, unfortunately, two minds. Better would it be for them to have only one: but I hope you will not conclude from this that I intend to teach here, that to educate our two brains is a fallacy, on account of the danger of leading men to have two minds, and to be all the time hesitating between two views, two opinions, or two decisions. On the contrary, I shall attempt to prove that the fault in those individuals who cannot make up their mind is dependent in a measure on the fact that they have not developed sufficiently the power of their two brains.

Dr. Wigan especially insisted upon the facts which we observe in insanity: that a patient knows he is insane; that he knows that he has insane ideas; that he will put them forward, and immediately afterwards will say, "I know they are insane." He is perfectly rational, while at the same time he is completely insane. Dr. Wigan has concluded, without any positive demonstration, that in these cases one-half of the brain is normal and the other half is diseased; one-half is employed with the mental faculties in a normal way, the other is employed as regards the same faculties in an abnormal way. But there are cases which are, perhaps, more interesting, and which, I think, more clearly support the view, that there are two brains. I saw a boy, for instance, at Notting Hill, in London, who had two mental lives. In the course of the day, generally at the same hour, but not constantly, his head was seen to fall suddenly forward. He remained erect, however, if he was standing, or if sitting he retained this position; if talking, he stopped for a while; if making a movement, he stopped moving. After continuing one or two minutes in this state of falling or drooping of the head, appearing as if asleep with his eyes closed, he would suddenly raise his head, open his eyes, being

quite awake, and then ask if there was anybody in the room whom he had not previously seen, who the person was, and why he was not introduced to him; being all the time in a state quite different from that of wakefulness. He had seen me many times, and knew me very well. Being with him once when one of these attacks occurred, he lifted his head and asked his mother, "Who is that gentleman? Why don't you introduce him to me?" His mother introduced me. He did not know me at all. He shook hands with me, and then I had a conversation with him, such as a physician may have with a patient. In another instance, when with him again, while he had the same kind of an attack, I found that he recognized me fully, and talked of what we had spoken of in our first interview. I ascertained from what I witnessed myself, and from what I obtained from his mother, a very intelligent woman, that he had in reality two lives, two mental lives, one in his ordinary state, and another occurring after those attacks of a kind of sleep for about a minute or two, when he knew nothing of what existed in his other state—in his ordinary life; that was all a blank. He knew nothing during that second state but what had occurred in previous periods of that same condition, but he knew full well all that had occurred then; and his recollection of everything was as perfect then as it was during his ordinary life concerning the customary acts of that state. He had, therefore, as I have said already, two absolutely distinct lives, in each of which he knew everything that belonged to its wakeful period; and in neither of which did he know anything of what had occurred in the other. He remained in his abnormal state for a time, which was extremely variable, between one and three or four hours, and after that he fell asleep, and passed out of that state of mind pretty much in the same way that he had gone into it. I have seen three other cases of this kind, and as so many have fallen under the observation of a single medical practitioner, such cases cannot be extremely rare.

As regards the faculty of speech, the fact that we have two
ains perfectly distinct, one from the other, is not, perhaps,
easily proved as it may be in reference to the mind. We
ell know, however, that a lesion in the left side of the brain
ill produce loss of the faculty of speech; which belongs
most exclusively to the left side of the brain; but the very
ct that the loss of speech depends on a disease in the left side
f the brain is itself an evidence that the left side of the brain
quite distinct from the right side; that it is in fact a brain
itself as regards that particular function of the organ which
e call the brain. Therefore, the well-known fact, that out of
e hundred cases in which the loss of the faculty of speech
d occurred, there is only one in which the disease was to be
nd in the right side of the brain, is extremely important in
wing that the two sides of the brain may act independently
ach other. I shall have to return to this again, as much
y argument depends on this point.

s regards sight, a theory has been advanced by a celebrated
sopher, Dr. Wollaston, of London, which has been adopted
great many physiologists, although by no one without some
ation. But as there was no better theory proposed, it
received as being at least probable if not demonstrated.
laston held the opinion that the right side of the base of
brain is the centre for sight in the right half of each eye.
right half of the right eye is, of course, the half farthest
the nose, and the right half of the left eye is the one
st the nose. The inner half of the left eye and the outer
of the right eye have for their centre, according to this
, the right side of the brain, and, *vice versa*, the left side
e brain would be the centre for sight in the left or outer
of the left eye and the inner half of the right eye. There
herefore, according to that view, a condition which is quite
liar. If we admit it for a moment, then we ought to find
a disease in the left of the brain at the base must destroy

only one-half of the power of sight, and objects then if seen are seen in half. Suppose a man to be looked at, there would be visible, if it is the left side of the brain which is affected, only the right half of the body. Wollaston himself had this trouble. One day, trying to read the name of an instrument, the barometer, he read "meter" only; the other part of the word, "baro," he could not see. Another eminent friend, while living in France, Professor Agassiz, had the same affection. He saw one-half of all objects. And a good many patients who are affected especially with certain disorders of movement and with diabetes have also this trouble; they see but half of objects. There are, therefore, cases which seem to be in favor of the view. But, continuing to consider what ought to take place, we find that, if the disease exists only in a small part of the left side of the brain, in that portion which serves for sight, we ought to find that then only one-half of one eye will be affected. There are such cases. If it is the other part of that same half of the base of the brain which is affected, then it is one-half of vision in both eyes which should be affected. There are also facts of this kind.

There are, therefore, three kinds of facts which seem to support the view of Wollaston. But what of that? Philosophers do not accept conclusions because there are some facts which support them. We accept conclusions when all the known facts are either in perfect harmony or clearly prove the conclusion; and also when there is no fact that seems to be in opposition. It is requisite, therefore, either that all the facts are in favor of the theory, or that while there are a number in favor there are none in opposition. Such is not the case here. There are a great many facts which show that a disease in one-half of the brain will produce complete loss of sight of one eye, either on the same or on the opposite side, or the two halves of both eyes. Therefore there are three series of facts, whil

one only would be enough, which demonstrate that the theory ought to be rejected.

But as regards sight we find this, and it is a point of importance, that a disease anywhere in one-half of the brain can exist without any alteration of sight whatever. A disease existing in that part where the optic nerve enters the brain, destroying that part altogether, may not be a cause of loss of sight; so that one optic fibre alone may be perfectly sufficient for the functions of the two eyes. Therefore I conclude that it is quite enough to have one brain to have our power of sight; and as it is so for each half of the brain, I can also conclude, and this is a point of importance, that each half of the brain is independent of the other, and that each of them possesses the powers of serving to the sensations of sight. You will ask how is it that a disease in certain cases in the brain will produce loss of sight, and that in other cases a disease in the same part will not produce loss of sight. As regards this, I cannot develop at length what I would have to say; but if any of you were present at my lecture in this city last year, or at the Academy of Sciences to-day, you know that an alteration in any part of the nervous system, whether in the brain or elsewhere, can, by producing an irritation, act on other parts, so as to produce the loss of a function of those other parts; and so it is especially with sight. In many experiments I have ascertained that injuring a small part of the spinal cord produces a loss of sight in the eye on the same side. An injury to the *medulla oblongata*, a little higher than the part of the spinal cord which produces loss of sight on the same side, will produce a loss of sight, but in the opposite eye. There is, therefore, a power of producing a loss of sight by irritation; and indeed there is nothing more common in children having worms than a diminution in the power of seeing. It is in the same way that an irritation existing in certain parts of the brain will produce, at a distance from the place where it exists, a loss of the func-

tion of sight. The cases that can serve as proof are, therefore, not those alone in which we find that the disease exists, since the loss of sight exists when there is a disease. The cases that can serve positively must clearly bring us to a conclusion; as those, on the contrary, which establish that an injury in any part or one-half of the brain—even in that part which receives the optic track—can exist without producing any loss of sight; and that fact has been observed—more than five or six times to my knowledge—and in those cases in the most decisive manner. Therefore the conclusion I have drawn is established. Either half of the brain may serve for the function of sight.

Now, as regards the volitional movements, the voluntary movements, if you like to call them so. Those movements, as you well know, have been considered as depending on each half of the brain for one-half of the body. Still, many physiologists have ascertained that there are muscles in our system in the neck, in the eye, in the throat, and in the back also, which escape paralysis when there is disease in one-half of the brain; and for these cases a theory has been imagined to explain how it was that the left half of the brain, for instance, is not the regulator of the movements in the right side of the body. I shall pass over that theory, and come to the point of importance in the object which I have in view.

As regards volitional movements, there are cases on record which leave no doubt that either the anterior lobe of the brain, the middle lobe, or the posterior lobe, the three essential parts of the organ, can be destroyed and voluntary movements not be interfered with at all. There are many cases—perhaps the word "many" is too strong, but there are at least seven or eight to my knowledge—of the destruction of the whole half of the brain without any interference with the voluntary movement. Therefore we are not to look upon one-half of the brain as being necessarily the organ serving to the movement of the body on the opposite side. And also another inference; we are to look

pon one-half of the brain, in some individuals at least, as eing able to control voluntary movements in the two sides f the body. If so, certainly the point I have in view—that s, to show that we have two brains—is established as regards oluntary movements. We have certainly two brains as regards oluntary movements; and if it is found in most cases that even slight injury limited to a small part of the brain will produce paralysis on the opposite side, or sometimes on the corresponding side—if that is found, it is on account of the principle hich I mentioned a moment ago; that is, that an irritation in ny part of the brain can affect functions in other parts through ransmitted irritation. And I can say in regard to voluntary ovements what may be said as to worms in the bowels, as ell as an irritation in a tooth, in the stomach, in the lungs, in ne heart, or an irritation in the skin; in other words, an irriation wherever there is a nerve subject to be irritated, all can roduce a paralysis as well as an irritation in a part of the rain. And therefore, when we see a slight alteration in a very imited part of the brain cause a complete paralysis on the pposite side of the body, we are not to conclude that it is wing to the loss of function of voluntary power where the isease exists, but that it depends upon an irritation starting rom the place where we see the disease, and acting upon remote arts so as to produce the loss of the function. The mere fact, hat a disease exceedingly limited in extent can produce a comlete paralysis in the opposite side of the body, is sufficient to show that it does not depend on the loss of the function of will; for the cause of motion of one-half of the body cannot be located in a very limited part of the brain. If it were the other side of the brain which produced that complete paralysis, if we found that paralysis is more or less extensive, more or less durable according to the extent of the disease in one-half of the brain, then we might conclude that the disease has destroyed the power of will in that half of the brain, and thereby produced

the loss of voluntary movement on the opposite side. But that is not what we find. We see that the lesion which has destroyed one-half of the brain may allow voluntary movement, while a lesion which is not larger than a pea in any one part of the brain can produce a loss of voluntary movement. Therefore we are to admit that when the paralysis of movement comes in connection with disease of one-half of the brain, it depends on an influence starting from the place where the disease is acting upon remote parts so as to produce a cessation of activity there, or in other words a paralysis.

The same reasoning may be applied in regard to perception of sensation. Here also we find the same thing. I shall, therefore, not dwell on that point. We know a thousand cases of disease occupying one-half of the brain that has not produced the slightest alteration in the power of feeling. But, if it is so, it remains to be explained how it is, that the two halves of the brain come to be in some respects different, and that the physiological and pathological study of the two halves of the brain indicates great differences in this respect. If we pass in review what is known, we find very great differences indeed. These differences depend on the fact that, through the fault of our fathers and mothers, the faults that weigh upon us, and have led us to make use of only one-half of our body for certain acts, and one-half of our brain for certain other acts also—we find that it is owing to that defect in our education that one-half of our brain is developed for certain things, while the other half of the brain is developed for other things. As regards what belongs to the left side of the brain compared with the right side of the brain, allow me to say the most important feature in its physiology or pathology is what a French physician has discovered. It is, as I have said already, that to that side of the brain belongs the faculty of expressing ideas by speech Besides that mental faculty of speech, the left side of the brain possesses, in a much more marked degree than the right, the power of moving the

tongue and larynx and muscles of the chest to produce the sounds of articulate voice. Articulation of sounds in speech in a great measure depends on the left side of the brain. I mean by the words "in a great measure" that it is chiefly the left side of the brain which has the power of acting upon the organs. So that more frequently in cases of disease of the left side of the brain do we find the difficulty in the mechanical part of the speech than in cases of disease of the right side of the brain. But that, although speech is, when defective, mechanical, and is something like a gesture, there is a mental sign in it, and I cannot but consider it as representing some mental trouble.

My pupil and assistant in London, who has become a very eminent man since, Dr. J. Hughlings Jackson, has also insisted on the point, that it is the memory for direction of movements of the muscles which serve to articulate, which is lost, and not the mere power of moving the muscles of the tongue, larynx, or chest. I have had proof of this in a great many instances, that, when told to do so, the patient could move the tongue in any direction, could move the larynx and utter sounds very well, but could not articulate, so that it was the mental part of that mechanical act—the mental part of which was altered, and not purely a mechanical action lost. The left side of the brain is also the one that leads in gestures, and that by a very simple reason, which is, that it is the left side of the brain which mainly directs the movement of the right arm, and it is chiefly with the right arm that we make our gestures. Still, it is likely, as pathological facts show, or at least appear to show, that even the motion of the left arm depends on the left side of the brain as regards gestures, as we find that in patients who have a disease of the right side of the brain the faculty is lost of making gestures with either the right or the left arm. That of course shows, or at any rate seems to show, that the left side of the brain is the organ for gestures chiefly. In a few cases, however, of disease of the right side of the

brain, the power of making gestures has been lost as well as in case of disease of the left side of that organ.

As regards the power of writing, there is a difficulty which you will easily understand. Still there are many facts which show that the power of writing can be lost more easily, and is lost more frequently in cases of disease of the left side of the brain than in cases of disease of the right side of the brain—a difficulty which many of you have understood without my mentioning it. We conclude that the right arm is not rarely paralyzed in diseases of the left side of the brain, and as we write with the right arm, it is very natural that, on being paralyzed, we cannot write; but very few patients have lost altogether the movements of the fingers, and cannot form the least sign, though many of them cannot at all form a letter. They will be able, however, if they have a letter written by some one whose handwriting is not very much different from theirs (and sometimes when it is different), they will be able to imitate what is under their eye, but they cannot from memory write anything; at all events, they cannot express ideas by writing. They are attacked with what is called agraphia—that is, a loss of the faculty of expressing ideas by writing. In many of these cases of patients attacked with agraphia there is a perfect power of moving the right arm. The arm is not paralyzed in all cases where the left side of the brain is paralyzed; there is often no paralysis on the right side of the body or the left; no paralysis anywhere. In these cases, it has occurred sometimes that the patient could not write at all; so that it is clear that the loss of the faculty of expressing ideas by writing does not depend on the paralysis which in these cases had no existence.

Another thing depends on disease of the left side of the brain more than the right side of the brain, and that is intelligence. Alterations of the mind manifesting themselves in the various forms of insanity depend more frequently, I should

y, on diseases of the left side of the brain than on diseases the right side. This is all I know now which belongs to the t side of the brain. The right side of the brain is quite dif- ent. From all that I have stated about the left side, as you ll see, that organ is chiefly the organ serving the mental ulties, either in speech, or in intelligence, or in gesture, or writing. That organ, therefore, is the important organ in r system adapted to the life of communication between our- ves and our brethren in a mental way. But the other organ he right side of the brain, in some individuals, as you will , has the power of the left side, and in all, perhaps, it might e had it if the proper development had taken place; but this ht side has also additional functions. The right side of the in serves chiefly the emotional manifestations, hysterical nifestations included, and to the needs of the nutrition of body in various parts. There is, therefore, taking a large w of the differences between the two brains, this difference, t one of them—the left—serves to what we call the life of ation, while the right serves to what we call the organic life. is view, which I put forward five or six years ago, has begun w to receive demonstration from several physicians, and I , therefore, the more emboldened in maintaining its correct- ss. The right side of the brain is remarkable in producing erations of nutrition either in limbs that are paralyzed, or in back. It is perfectly well known that a number of patients every month in every large city, of ulcerations taking place the *nates* or on the *sacrum* originating from an irritation the brain. These patients are more numerous among those acked by disease in the right side of the brain than among ose attacked with disease in the left side of the brain. Either lema or bed-sores, either one or the other of those two kinds lesions is more frequent in cases of disease of the right side the brain than in cases of the left side. The proportion is nsiderable. It is as two-thirds for the right side of the brain

and one-third for the left. There are many other points which show the same thing. An ulceration in the lungs, an ulceration in the liver, a hemorrhage, for instance, and sudden inflammation—all these disturbances can take place from an irritation of the brain, as I have shown; but in these cases it is chiefly the right side of the brain that has the power.

I have already said that hysterical and emotional symptoms are more common in cases of disease of the right side of the brain. This has been established already by a good many physicians—Drs. Briquet and De Fleury, and a good many others, besides myself. We have collected cases of paralysis in one-half of the body, caused by hysteria, and this proportion has been found; out of 121 cases of paralysis caused by hysteria (a paralysis which is usually merely transient, and very rarely lasts long)—in 121 of these cases there was disease of the brain on the right side 97 times, and disease on the left 24 times; so that the right side predominates in this class of affections. That paralysis exists on the left side of the body more frequently than on the right side you well know, and, as it affects chiefly the right side of the brain, it affects chiefly the left side of the body.

Now as regards other points, my pupil, Dr. Jackson, has ascertained that an inflammation of the retina produces amaurosis more frequently in both eyes from disease of the right side of the brain than the left side. Convulsions of the eye take place very frequently in cases of disease of the brain. I have ascertained, from a study of the cases published by Dr. Prevost, Dr. Charmel, and many others besides my own, that out of 69 cases in which these convulsions of the eye occurred there were 47 due to the disease in the right side of the brain, and 22 due to disease in the left side of the brain. Therefore there is a great difference between the two sides of the brain, as you will see. It is also so as regards general convulsions. Callender and myself have shown that general convulsions will

occur much more frequently in cases of disease of the right side of the brain than in cases of disease of the left side. I have ascertained that both will occur far more frequently in cases of disease of the right side of the brain than in cases of disease of the same extent and the same location in the left side of the brain. Not only disease in the right side of the brain will have the greatest power in this respect, but it will also, if the patient does not die, produce a more marked paralysis; a more extensive and more permanent one. So that, as regards degree, as regards extent, as regards duration of the paralysis, the right side of the brain is by far worse than the left, showing again that that side has the greater power of nutrition. There are a good many other points showing a difference of the same kind. I pass them over, as time presses. There is, therefore, as you will see, a radical difference between the two sides of the brain. But now this depends, as I have said already, not upon the fact that the two sides of the brain are very different originally, but it depends on development. Every organ which is put in use for a certain function becomes developed, and more efficient in performing that function. Indeed, the organ shows it in size. The left side of the brain, which is used most in our system, is larger than the right side of the brain. The left side besides receives a great deal more blood than the right side of the brain, because it has a preponderance in our system, and every organ that acts much, receives more blood. As regards the influence of action on the brain, there is a fact which hatters know very well. If a person is accustomed for many, many years from adult life—say from 20 up to 40 or more—to go to the same hatter, the hatter will find after a time that he has to enlarge the hat of his customer; and, indeed, a person advanced in life, even having passed, as your lecturer has, 56, has a chance to observe such a change. There is no period of six months that has passed that I have not found that my hat, if neglected and put aside, became too small. The head, therefore, growing, is a

very strong proof that the brain also grows. Action, therefore, is a means of increasing size, is a means of development; and I have no doubt that a good many among you have observed that, after they have paid great attention to a subject, they have not only acquired knowledge on that subject, but become much more able to solve questions relating to that subject—that they have developed the part of the brain which has been used for the acts in which they have been engaged, and that part has become far more able to perform its functions. This is perfectly well shown by everything in our system. We well know what a power a pianist can have, if he continues to exercise his fingers and brain on the piano. But such a pianist neglecting to perform the acts that he was accustomed to perform before, it is very soon found that there is a defect. We must go on, therefore, exercising the organs in which we desire to have the great activity of life. There is no doubt, therefore, that the left side of the brain, as is shown by its great enlargement compared with the right side, and as is shown also by the quantity of blood that it receives, that that organ is the one which is predominant in our system. But our being right-handed shows this also.

It is quite certain that right-handedness depends something on nature. As you well know, the wildest populations in the world are right-handed, as we are. There is no people anywhere in the world that has not been found right-handed. There is therefore in man a cause which makes the right side of the body to be selected as the one to be used the most, and together with that right side of the body the left side of the brain, which usually moves that right side, is increased considerably in power and in size. There is, therefore, primitively, a development given through some natural cause to the left side. We find that individuals who are left-handed make use of the right side of the brain, and when they become confused—when they lose the faculty of expressing ideas by speech—it is

the right side of the brain that is affected, showing the connection between the development of one-half of the brain in the use of one arm, and the development of that same half of the brain in the faculty of expressing ideas by speech. There is, therefore, a connection between these two things, and on this point I shall dwell a little more in a moment. There is primitively a difference between the two brains, and Professor Gratiolet has discovered in children that the second convolution—the convolution of the left side of the brain—is developed quicker than the convolution of the right side. This may be in a measure owing to hereditary traits; but at any rate, as there is an evidence that there is a natural tendency to make use of the right arm, it is certain that a part of that ability of development on the left side is due to something natural—that something natural will be found, if it is examined, in the greater supply of blood to that part. Even parrots and birds show something very interesting as regards right-handedness. Parrots perch only on the right leg, or mostly only on the right leg. Very few parrots out of twenty taken at random, perch on the left leg, according to what Dr. William Ogle ascertained after having examined a great number of them. Parrots, of course, are known to have something like speech—a parrot's speech, of course. It is perfectly well known that the mechanical parts of speech belong to them, and it is remarkable that their left brain receives also more blood by far than their right brain. There is therefore a relation between all these things in the development of the right side of the limbs and the amount of blood received by the left side of the brain. There is another point of importance. Prof. Broadbent and others have found that in the left side of the brain the mass of gray matter is greater, and there are more convolutions than in the right side of the brain.

Now we come to four points of great importance in this lecture. They are the vital points, I may say, in the argument

I have presented here. The first of these points I have already spoken of. It is, that we find that agraphia is connected with the left side of the brain in persons who are right-handed, and with the right side of the brain in persons who are left-handed. This, certainly, is a very strong argument to show that the side of the brain which serves the motion of one side of the body, that side—if the side of the body be the one which leads, is the most important of the two—that side of the brain then is the one that serves chiefly to the mental life in our system. The mental life of our system, therefore, seems to be developed considerably in the organ which itself seems to be developed in a great measure owing to the action of will in one-half of the body. There is certainly a connection between these things, but that will come out more by and by.

The second point is, that in children who have not yet learned to talk, or who have already learned only a little, if disease comes in the left side of the brain, the one, I repeat, which is, usually, the most rapid in its development if disease comes to produce atrophy, so that the left side of the brain becomes useless, those children then learn to talk just as well, or nearly as well, as if they had no such affection, and they learn it with the right side of the brain, which is the only one acting. They were not born (the most of them, if not all of them, if there is any exception I don't know it) of parents who were left-handed, and there was no reason for their being left-handed. They had the misfortune of losing the half of the brain which served usually to the mental faculties, and other mental faculties became developed—the power of speech and action—and they make use of the left arm then just as well as any one of the right-handed people makes use of the right arm. There is in these facts clear proof that the right side of the brain can be educated to become a leader in mental faculties as well as the left side of the brain. There is a clear proof that the right side of the brain can lead movements and obtain exe-

cution with the left arm, just as most people who are right-handed obtain execution of movement with their right arm. These facts, therefore, are decisive in favor of the view that I have for my object in this lecture.

The third point of importance is that with a given number of individuals, out of 100 examined by Dr. Wm. Ogle, who were left-handed, four only had learned to write with the left arm. They had been taught by their parents, although they were left-handed, to make use of the right hand to write, and their writing with the left arm, the author states, was very clumsy. In one of the cases he had to learn the facts from what the patient had to say; the patient being paralyzed in the left hand, he could not write; but in the others he had the proof, and could see. Therefore, the left side of the brain, even in persons who are left-handed naturally—even in persons who make use chiefly of the right side of the brain—can be educated so as to produce a very good handwriting instead, and better than the writing by the left arm.

The fourth point of importance is one on which I shall not dwell, as it implies a knowledge of medicine that you have not, but I shall state it in only a few words. It is exceedingly rare that the leg is affected to the same degree by paralysis as the arm, and the leg, as you well know, is not a part which we develop as much in its movements as we do the right arm. If a patient is struck with paralysis, for instance, on the right side of the body, owing to a disease of the left side of the brain, he will lose more, if he does lose movement at all—he will lose more of it in the right arm which he has been accustomed to train than in the right leg. But, I repeat, that this argument cannot be understood well except by medical men. I pass it over therefore.

There is no reason whatever to object to our teaching children to make use of the two sides of the body. If you have been convinced by the arguments I have given that we have two

brains, it is clear that we ought to develop both of them, and I can say, at any rate, as much as this, there is a chance—I would not say more, but at least I can say there is a chance—that, if we develop the movements of the two sides of the body, the two arms and the two legs, one just as much as the other, there is a probability that the two sides of the brain then will be developed, as regards the mental faculties, one as much as the other.

The facts that I have brought forward, the last especially—what I have called the four points of importance, and particularly the first three, show that there is a connection between the development of the brain as regards the mental faculties, and the development of the brain as regards leading movements in one side of the body. There is a great probability, therefore, that, if we give a good deal of attention, or, better, as much attention to the left side of our body as we give to the right, there is a great chance that we would have two brains, as regards mental functions, instead of one, as we have now. There is no doubt that we can improve the two sides of the body constantly. The facts I have mentioned as regards those children having atrophy on the left side of the body, do not leave room to doubt. It is clear we can develop the left side so as to make it exercise all the functions which exist in most of us in the left side of the brain, and, if so in cases of atrophy on one side of the brain, why not so in cases in which we have two brains? I think, therefore, the important point should be to try to make every child, as early as possible, exercise the two sides of the body equally—to make use of them alternately. One day or one week it would be one arm which would be employed for certain things, such as writing, cutting meat, or putting a fork or spoon in the mouth, or in any of the other various duties in which both the hands and the feet are employed. In this way it would be very easy indeed to obtain a great deal, if not all the undeveloped power possible to the individual. We know

that even adults can come to make use of their left arm. A person who has lost his right arm can learn to write (with difficulty, it is true, because in adult life it is much more difficult to produce these effects than in childhood), and the left arm can be used in a great variety of ways by persons who wish to make use of it. It is perfectly well known that the left arm is employed in playing on the piano or on certain other instruments almost as well as the right arm. Therefore there is no difficulty in training children to make use of both sides of the body equally.

There is also another fact as regards the influence of training. Even in adults, who have lost the power of speech from disease of the left side of the brain, it is possible to train the patient to speak, and most likely then, by the use of the right side of the brain, the left side of those patients, with great difficulty, will come to learn. They always have more difficulty than do children, but they learn if they are taught in the same way. It is the same kind of teaching that we employ for a child when we try to make it speak; it is the same way that should be employed to teach an adult who has lost the power of speech. It is so, also, as regards gesture, and the rest. I have trained some patients to make gestures with the left arm, who had lost the power of gesture with the right, and who were quite uncomfortable because their left arm, when they tried to move it, at times moved in quite an irregular way, and without any harmony. There is an aptness acquired by training, therefore, even in adults, and, if so, that capacity exists in children, and as we well know that we can make a child naturally left-handed to become right-handed, in the same way we can make a child who is naturally right-handed to be left-handed also. But the great point should be to equally develop the two sides. To point out this has been the principal object of this lecture; and I have now to thank you for having listened to these long and tedious details.

SMITHSONIAN MISCELLANEOUS COLLECTIONS.

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THE TONER LECTURES

INSTITUTED TO ENCOURAGE THE DISCOVERY OF NEW TRUTHS FOR THE ADVANCEMENT OF MEDICINE.

LECTURE III.

ON STRAIN AND OVER-ACTION OF THE HEART.

BY

J. M. DA COSTA, M.D.,

PROFESSOR OF PRACTICE OF MEDICINE IN JEFFERSON MEDICAL COLLEGE, PHILADELPHIA; PHYSICIAN TO THE PENNSYLVANIA HOSPITAL, ETC.

DELIVERED MAY 14, 1874.

WASHINGTON:

SMITHSONIAN INSTITUTION.

AUGUST, 1874.

ADVERTISEMENT.

THE "Toner Lectures" have been instituted at Washington, D. C., by Joseph M. Toner, M.D., who has placed in charge of a Board of Trustees, consisting of the Secretary of the Smithsonian Institution, the Surgeon-General of the United States Army, the Surgeon-General of the United States Navy, and the President of the Medical Society of the District of Columbia, a fund, "the interest of which is to be applied for at least two annual memoirs or essays relative to some branch of medical science, and containing some new truth fully established by experiment or observation."

As these lectures are intended to increase and diffuse knowledge, they have been accepted for publication by the Smithsonian Institution in its "Miscellaneous Collections."

JOSEPH HENRY,
Secretary Smithsonian Institution.

SMITHSONIAN INSTITUTION,
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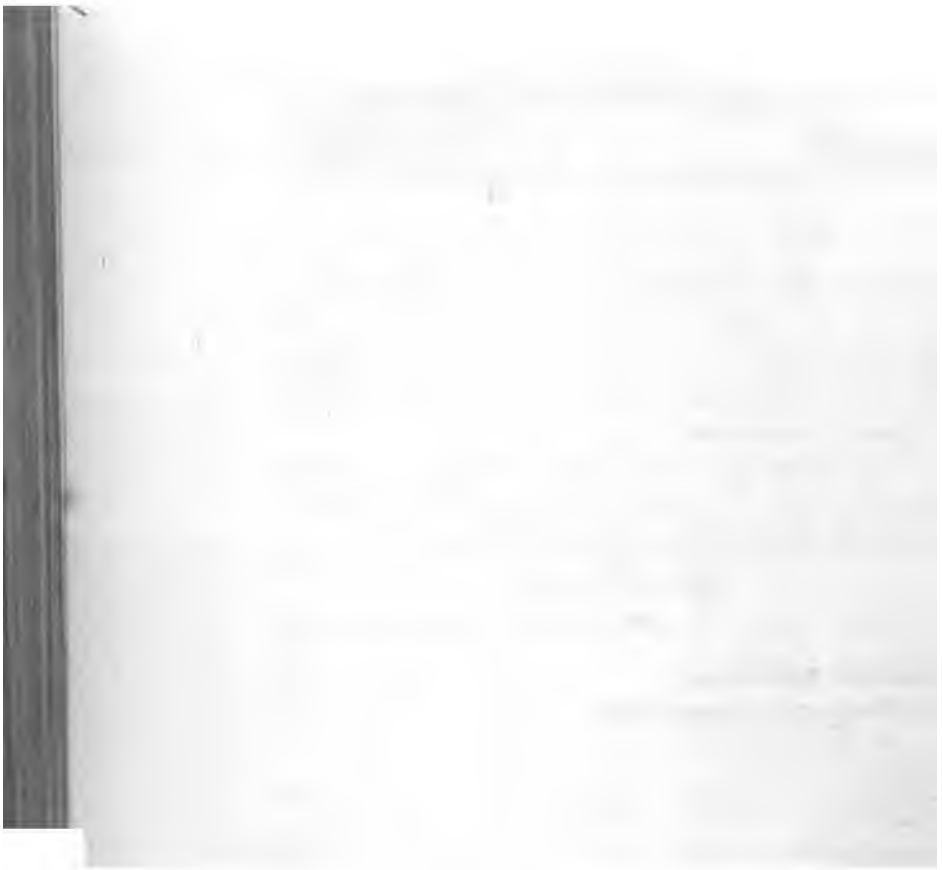


LECTURE III.

Delivered May 14, 1874.

ON STRAIN AND OVER-ACTION OF THE HEART.

By J. M. Da Costa, M.D.

By the kind invitation of the Trustees of the Toner Lectures I am here to-night to address you on some subject connected with our common profession. The choice is practically left to the speaker; but if I understand correctly the aim of the eminent gentleman whose public spirit has founded these lectures, it is that they shall deal not so much with mere isolated facts, however interesting these may be, but rather with some general topic, susceptible of being discussed in its broad traits, and the discussion of which should, if possible, contribute to its clearer and fuller understanding. It is acting in this belief that I select a subject admitting of as comprehensive treatment as that of the Production of Diseases of the Heart; and I am the more tempted to take this as my discourse when I remember that the starting point of several of the conclusions I wish to lay before you was in some researches conducted under the auspices of the office over which another trustee of these lectures, the Surgeon-General, so ably presides.

Affections of the heart are very common, and, I think, becoming more so. I have recently seen a statement, the result of statistical inquiries, that there are three kinds of diseases which, in this wide and busy land of ours, are steadily on the increase—insanity, and some affections of the nervous system; dyspepsia; and diseases of the heart. No one engaged in the

practice of medicine can fail to appreciate how very prevalent the latter are, and the question is worthy of the deepest study, What causes them, and can we by any means materially lessen their increasing frequency? Again, is there anything in our habits and mode of life, in our work, our amusements, which can be so altered as to avert them? Of many we know the origin to be either an inherited trouble, or an attack of acute rheumatism, or those changes in the muscular structure and in the coats of the great vessels, which go hand in hand with general decay. But these sources of cardiac disease are so well understood that nothing would be here gained by their description. I desire rather to speak to you of a cause very little appreciated, to some scarcely known—the production of disease of the heart by strain and over-action. Strain and over-action may go together, or they may not, and the former may or may not precede the latter. While thus there is a close connection, at times nearly an identity, between the two, it will be convenient, in a general way, to limit the idea of strain, unless the contrary is stated, to an acute strain, an injury by sudden, violent effort; and to think of over-action, over-exertion, or over-work—for these terms may be employed almost synonymously—as a persistent excitement and derangement produced by less rapidly acting causes.

Now, a strain may rupture the muscular walls of the heart, and though there is the greatest doubt whether it can do so unless they are previously diseased, there is none as regards the rupture under strain of fatty or otherwise enfeebled walls. But I pass this by to speak of breaks and tears in the valvular apparatus and great vessels, clearly the result of sudden disturbance. A person, for instance, is seized quickly, after unusual exertion, with pain in the heart. He is recognized to have a distinct murmur, which never leaves him, and sooner or later the typical phenomena of valvular disease will show themselves, varying, of course, as this or that valve has been the

one damaged. No matter what valve be the seat of the accident, severe pain, occurring suddenly, and returning in paroxysms, is apt to be a symptom of valve tear, and often the patient will remember that just preceding the first attack of pain he has felt something give way within the chest. The valves which suffer most frequently from injury are the aortic and the mitral valves. A segment of the mitral has been often observed torn from its attachment; but the same thing may happen at the tricuspid. Thus a case was brought to my notice by Dr. Thomas F. Wood, of Wilmington, N. C., in which in a man, forty years of age, severe paroxysms of cardiac pain happened at irregular intervals, and were attended with distinct venous pulsation. This was, however, also noticed independently of the cardiac distress; though only markedly while this lasted, or just before, or soon after. At the autopsy the heart was found to be enormously hypertrophied; one of the papillary muscles of the tricuspid valve was torn from its attachments both from the walls of the heart and the tendinous cord; and a piece was really found floating in the pulmonary artery. The right auricle and ventricle formed a continuous pouch filled with coagulum. The muscular structure of the heart was not examined microscopically; but to the eye it did not appear fatty.

You have, in the class of cases just alluded to, the result of muscular strain, or violent muscular exertion. But the same result, I am sure, may happen from extraordinary mental emotion or shock. Let me give you some instances.

Mrs. B., a woman of intelligence and character, about thirty years of age, was awakened one night in September, 1862, by a noise in her house, and in getting out of bed she came in contact with a strange man. She was very much frightened, but succeeded in getting him out of the door. Listening, still greatly alarmed, she overheard a conversation that the party would return when the moon went down. Her husband was

absent, and on the spur of the moment she started, with one child in her arm, and leading another by the hand, across the fields and over fences to the nearest neighbor, a distance of about one-quarter of a mile. Her previous health had been excellent, but after this perilous night journey she began to be troubled with shortness of breath and severe beating in her chest. The physical signs of an aneurism of the aorta gradually became evident, and she died a few months since by the external rupture of an aneurism which had corroded the sternum.*

This case cannot, perhaps, be adduced as a pure one of mere agitation and fright leading to rent or injury, since it is possible that the violent exertion in carrying her children may have led to the accident. But even if it did so, it happened when she was previously much excited, and the alarm continued during her flight. In the instance I am about to detail to you there was no severe muscular effort that accompanied the nervous shock:—

Some years since a blooming girl of eighteen was brought to my office by her mother, to consult me with reference to palpitation and shortness of breath on exertion, which had developed themselves suddenly. I found a well-marked aortic, regurgitant lesion. She never had had rheumatism, had been, indeed, in perfect health until a certain day, and had been remarkable for the ease and endurance with which she rode and walked long distances. But one night—it was in the midst of the troublesome times in the border States during the civil war—while she and her mother were alone in the house, which stood some distance from any neighbor's, and the father was known to be far away with the army, two men entered the dwelling, and, notwithstanding the entreaty of the mother, slowly ascended the

* The case will be reported in full in the October number of the American Journal of the Medical Sciences by my late clinical assistant Dr. Webb.

wide staircase. The girl was beside herself with agitation and alarm—the mother, resolute, told them not to advance or she would fire. The warning was unheeded; the flash of the pistol followed. The fire desperately wounded one of the invaders; the other fled. But from that fatal night the girl was a wreck; the palpitations never left; and after a few years, I am sorry to record, the cardiac trouble led to death.

You see, then, in these cases the effect of strain and over-excitement of the heart in producing organic lesion. You will say there must have been some previous disease of the structures, or they would not so readily have given way. But the ages of the patient are not those at which degenerative tissue-change is apt to happen. Moreover, I find in the literature of medicine similar cases mentioned which have occurred in very young children. Thus, in the *Boston Medical and Surgical Journal* for November, 1866, Dr. Hitchcock records a rupture of the tricuspid valve from fright in a little girl two years and nine months of age. She was often nervously excited by loud noises, and when in the middle of the night the steam fire-whistle was suddenly and protractedly sounded near her window, awoke in terror screaming and panting; and it was hours before she could be quieted. Her breathing remained labored, and at her death, seventy-eight hours after the fright, the right auriculo-ventricular valves were found to be lacerated and broken in their substance, as were also several of the columnæ carneæ, and chordæ tendinæ.

The explanation of cases like these has been attempted on the supposition of a rapidly developed endocarditis. Yet where is the proof of this? There may be more likely, after all, in many instances some imperfection which is the cause of the break. But this does not always appear to the naked eye, and even with the microscope the difference from health is not invariably of pronounced character. Clinically it is undoubted that the violent agitation produces the first evidence of disease,

and that without this agitation normal life will not be interfered with. But before passing on to the consideration of other matters, let me, in confirmation of the idea that there may be a slight alteration, under ordinary circumstances innocuous, but becoming serious under strain, tell you that I have occasionally, in *post-mortem* examinations, found valves with slight fissures in them. In this drawing (Fig. 1), taken

Fig. 1.

from a specimen now in the Museum of the Pennsylvania Hospital, I show you such a state of the valves—not a lesion, you perceive, which, under ordinary circumstances, would have occasioned marked disorder, but sufficient to have produced a rent under any strain, or severe and sudden abnormal working of the organ.

We have thus examined into the effect of strain or violent agitation in developing rapidly organic disease of the heart or its great vessels. Let us now investigate another part of the subject, and study the functional excitement of the heart and its consequences, when the excitement acts through a longer period of time—when we have, therefore, continued over-action and over-work. There are various groups which present themselves here to view, but as it will not be possible to do more than examine a few of them, I shall endeavor to

look with you at those which shall best illustrate the general argument of the lecture.

There is, first, the "irritable heart." This is a condition which became familiar to many of you during the late war; and I shall but very briefly recall its main features—the more briefly as I may refer you to a full description of it I published in the *American Journal of the Medical Sciences* for January, 1871. It consists chiefly in extremely rapid action of the heart, attended with pain in the chest, dizziness, and oppression. The pulse is small, and readily compressible; its frequency is greatly lessened by the recumbent posture. The impulse of the heart is extended, abrupt; the first sound is short, the second very distinct. Occasionally the first sound is replaced by an inconstant murmur; the respiration is not hurried or frequent in proportion to the pulse. The general health often appears good, or at least it may be fully restored while the cardiac malady remains. Hard field service, particularly excessive marching, and diarrhœa act as the predominant causes. Digitalis and rest are, on the whole, the most successful remedies.

Here you have a short statement of the irritable heart of soldiers. But it is my object now to call your attention to the phenomena you meet with in your ordinary professional life, and in so doing I take the opportunity of supplementing my observations on the irritable heart of soldiers with observations on the same malady as I have encountered it in private practice. In truth, excepting that the disorder is less violent, and the cardiac pain usually less severe, the malady is identical. I have noticed it in persons who, without previous training, had suddenly undergone great and sustained exertion, as pedestrians, or in climbing. Handfield Jones, in his work on *Functional Nervous Disorders*, in commenting on the cases I have described, mentions that he had had personal experience of the malady; for after making a long mountain

excursion when he was out of condition, he became extremely fatigued, and was ill and sleepless the following night, and some days later was attacked by severe precordial distress, with sensation of impending death, which harassed him for some considerable time. Now, if in cases of the kind the violent exertion is maintained for a longer period, we have the typical irritable heart developed.

But we may have it also coming on suddenly under circumstances of particular excitement, and then persisting. Of this I encountered an instance some years since in a man who had served in the army to the end of the war without the least evidence of cardiac distress, and joined in 1846 the marine corps, being at the time in excellent health. He was sent to Alaska, and on the return voyage a heavy storm occurred that necessitated his remaining on duty for forty-eight hours, all of which time he was greatly excited and alarmed. Palpitation developed itself, and annoyed him so much that, three weeks after the storm which so upset him, he applied to a physician for relief from severe cardiac beating. I saw him in 1869, and his case was a typical one of irritable heart; the action was excessively frequent: the beats of the pulse not even; the respirations were only twenty-four, and he was not much troubled with difficulty in breathing excepting in going up stairs. There was a soft systolic murmur near the apex. Rest, digitalis, and belladonna improved his condition very much, and the cardiac murmur disappeared; but though he was under treatment for six months, the frequent and irregular action of the heart did not entirely leave him.

Violent excitement may thus give rise to an irritable heart, which may become a very obstinate condition. But such cases bear no proportion to those in which the exciting cause acts more gradually and over a long space of time.

Of causes that are very commonly the starting point of irritable heart, and with which I know observation has made you familiar;

I may mention irregularity or excess in eating and in drinking, sexual disorders, long matrimonial engagements, the abuse of tea, of coffee, of tobacco. There is, of course, a great deal to be said about individual peculiarity favoring the development of the complaint, and one person may do that or take that with impunity which in another is sure to produce disturbance. Thus, malt liquors alone give rise to irritability of the heart in one, certain wines in another; and in some families there runs a strong tendency to palpitation, which is readily developed by causes influencing the heart that are without effect in others. Of the sources of irritable heart alluded to, tobacco is one of the most common. Its use not only produces irritability of the organ, but immensely aggravates an existing tendency to palpitation; and one of the traits of the irritable heart due to tobacco is that irregularity of the action, shown by intermission or irregularity of beat, is a very ordinary feature.

Yet another cause I may mention as giving rise to a persistent excitement of the heart, and favoring its over-action, are preceding febrile seizures, whether malarial or of continued fevers. And cases thus originating may last for a very long period. I saw recently one in a lady in whom the cardiac disorder began in a severe attack of typhoid fever twenty years ago. But it is, perhaps, not fair to speak of these instances as due to mere perverted action of the organ; there is often a coexisting structural change in the muscle; for we find in many of these fevers by careful examination, certainly in typhoid, in typhus, and in yellow fever, a granular degeneration of the muscular fibres of the organ.

One of the most interesting circumstances connected with the forms of over-action or over-excitement of the heart we have been glancing at, is, that however purely functional this shall have been at the outset, organic disease of the heart may grow out of it. In the paper on the irritable heart of soldiers, and previously in one forming part of the Medical Memoirs of

the U. S. Sanitary Commission, issued in 1867, I have published a number of cases proving this view. To these I could add others traced out since the publication of these investigations. But as already indicated, I prefer here to draw my illustrations from the records of private practice, and doing this, will cite these examples in further proof of my proposition.

First. The case of a lady with very bad prolapsus, and other uterine trouble. When I first saw her she had simply a functionally disturbed, rapidly beating heart. I lost sight of her, and when, after about a year, she consulted me again, the impulse had grown heavier and more forcible, and there was beginning hypertrophy. Another year passed, a year which had brought with it much mental worry and during which she had paid very little attention to her health, and I found that the slight cardiac enlargement had become marked dilated hypertrophy.

Secondly. The case of an inveterate and most extensive user of tobacco in a man thirty-six years of age, who, in addition, had great strain on him from continued attention to business. The heart's action, at first, was rapid and intermittent; there was palpitation, with occasional cardiac pain. These symptoms gradually lessened, the action became more regular, but some dilated hypertrophy ensued. The percussion dulness is at present very marked, the impulse only moderately strong, and the tendency to dilatation may in time be greater than to hypertrophy. Now there is a distinct, systolic, functional mitral murmur, and no increased second sound.

To these cases I could add a list in which cardiac over-exertion in special occupations has led to heart-growth and distension, but we shall presently have to examine this part of our subject at some length, and the examples there adduced will strengthen what I have just endeavored to make clear. Let me here, however, say that no matter what the starting

point of the functional disorder, should it pass into an organic malady the physical signs are always the same—an increase of the percussion dulness and of the extent of the impulse, which, as the vast majority of instances lead to hypertrophy rather than to pure dilatation, is forcible, and becomes associated with a prolonged, dull, first sound, and a second sound which gradually loses its exceeding distinctness. At times a softish, inconstant murmur over the left ventricle replaces the altered first sound, and these instances are very apt to be regarded as mitral organic disease, which they are not. But whether with or without murmur the action of the heart becomes less rapid, and cardiac pain diminishes.

I have now indicated to you how a functional disorder from excitement or over-action of the heart, no matter how produced, may end in organic trouble. But you will ask me, in what manner does the first derangement originate? Is it in the muscular structure of the heart itself, or in its nervous apparatus? In the latter, I believe, in the vast majority of cases; and the perverted innervation is either primary, or more usually the disturbance is reflected to the heart. But if you tell me to show you what nerves are, in individual instances, at fault, I shall have to say that I do not think that a satisfactory and quite trustworthy answer can always be given. Our knowledge of the nerve-supply of the heart, and of the part each nerve plays, is not so positive that we can unhesitatingly expound all clinical facts by it. Still it is, even with our present knowledge, admissible to regard the constant pain so common in irritable heart, as a hyperæsthesia of the sensory nerve-fibres; and assuming the antagonism between the pneumogastric and the sympathetic to be correct—that the former slackens or suspends the action of the heart and the latter quickens it—you will at once understand how anything which exhausts the controlling action of the first, gives the power of the other full play; and how thus many instances

of irritable heart and functional disorder, in connection with cerebral, or spinal, or gastric maladies, may be explained. But I incline to accord to disturbance of the sympathetic elements of the cardiac plexus the chief part in leading to the manifestations of distress. Moderate irritation, Moleschott proves stimulates their action, and this irritation may originate in them, but is much more likely reflected to them, as from the great abdominal sympathetic ganglia; and thus you have the probable explanation of the functionally disturbed heart of gastric and of uterine affections. Further, from the perverted innervation comes altered nutrition, and thus heart disease may grow out of heart disorder; as we now know that structural alteration of the skin, or of the joints and other parts of the economy, may result from abnormal nerve influence. Nay, in the light of these remarks, we can understand how even mental emotion, acting through the nervous system on the nerves of the heart, may produce real trouble, and how the worry of life, and strain on the feelings, when long kept up, may give rise to conditions which, in figurative language, we ca "heart-weary," and "heart-sick," and which, not as a figure of speech, but in truth, may be the beginning of actual cardiac malady.

But it would lead me too far to pursue this matter here any further. I merely looked at it incidentally in trying to make clear that excitement and over-work of the heart first disorder the function, and then may produce organic change, and in attempting to explain how this happens; and shall call your attention to a subject of great and wide interest which has the closest connection with what we have been discussing—the effect of certain occupations, nay, of our amusements, in leading to cardiac trouble from the constant strain and over-work thrown on the heart, partly in the gradual manner just described, through perverted nervous action—but partly, also, by directly causing inflammatory and other tissue change.

For instance, in soldiers we have, owing to their occupation, heart disease as a very common affection, originating in the way already mentioned. But also there may ensue, as I have had occasion to note, and as is ably brought out by Dr. Maclean in the British Army Medical Reports, and by Dr. Myers in his recent interesting work on the Diseases of the Heart among Soldiers, by the direct strain on and over-distension of the aorta, alteration of structure, leading to aneurism or aortic valve trouble; and, as Dr. Maclean has shown, that white patches on the pericardium, the result of inflammatory, or at least nutritive tissue changes occur, it is very likely that the same or kindred alterations may be produced in the arterial coats. How far the dress and accoutrements of the soldier, and the mechanical obstructions to free circulation which they may occasion, determine the malady; how far it is the heavy exertion which his calling may necessitate that brings it on, is not a question for discussion here. The fact alone of the occupation causing the affection is being commented upon. Then, as we know from Dr. Peacock's observations in his Lectures on Valvular Disease of the Heart, men who work in the tin and copper mines, and return to the surface by ladders, are particularly subject to heart disease; and the same authority tells us that disease of the aortic valve is more commonly the result of over-exertion than is disease of the mitral. And another well-known physician, Dr. Allbutt, in an essay published in the Clinical Society Transactions for 1873, states that he found, by *post-mortem* examination, that men who had worked at heavy employments, such as bargemen, porters, strikers in iron-foundries, often present evidences of such exertion in an increased volume of the heart itself, and in marks of chronic inflammation, old or recent, in the first portions of the aorta. In truth, all occupations such as those mentioned, or in which continual lifting is required, favor the production of dilated hypertrophy, or aneurism, or valvular disease, or valvular rup-

ture; and the latter brought about not only by sudden efforts, but likely determined also by the gradual textural changes previously caused.

Let me cite you a case in which, I think, the valvular disease was produced by inflammatory alteration. Only a few days ago a miller came to my office troubled with cardiac pain, and presenting a distinct mitral organic murmur. He had at one time been in the habit of shouldering enormous bags, and of attempting to run when thus weighted. For the last eight years he has only been able to lift the bags very rarely, being annoyed with beating of the heart and shortness of breath—indeed, the latter had become a symptom existing even without any exertion. Previously to the time mentioned he remembers to have suffered from severe pain in the heart for three or four days after his lifting freaks, and on one occasion very greatly.

In examining into the question of the effects of occupation, we find further that excessive expiratory efforts produce affections of the heart or its great vessel. Disease of the coats of the aorta and aneurisms may be thus caused. For instance, in the museum of the Jefferson Medical College is an aneurism taken from the body of a celebrated cornet player. And among glassblowers I have been astonished to find how common are cardiac disorders. I call your attention to this table of 24 men examined, and procured for me by the kind exertions of Dr. Webb. They were not specially selected, did not apply for medical advice—and, indeed, the only care taken in obtaining them was to get mainly those who had been for some time in the business. Irrespective of the facts which the table discloses, I learned, by conversing with the men, that large numbers of their fellow-workmen were troubled with pains across the chest, and with piles. And, as regards this table, we find among the 24 men only one-half who, on a fair estimate, may be considered as presenting healthy hearts.

Among the 12 with abnormal signs are 3 more or less well-marked instances of hypertrophy; 7 of the remaining 9 had some cardiac symptoms in addition to the physical evidences of disorder, and several of these showed typical irritable hearts. One of the cases of hypertrophy might be set aside on the ground of the very free use of tobacco; and the same may perhaps be said of two of the cases of functionally disturbed heart, leaving still 9 out of 24 in which the occupation of glass-blower—chiefly, I think, on account of the respiratory efforts—has led to cardiac affection.

Table showing the State of Health of 24 Glassblowers, with special reference to the condition of the Heart.

Name.	Age.	Length of Time a Glass-blower.	General Health and Habits.	Whether he Suffers from Palpitation and Shortness of Breath, etc.	Physical Signs.
Edward T.	34	18 years.	Excellent; never uses tobacco.	No.	Cardiac percussion dulness normal; rather heavy first sound. Pulse 75; respirations 18.
John N.	26	6 "	Good; uses tobacco freely.	Occasional palpitation and shortness of breath, the latter especially after exertion; pain in right side.	Percussion dulness normal; first sound of moderate volume, occasionally beats are unequal. Pulse 64; respirations 24.
Jefferson H.	38	20 "	Often feels weak; uses tobacco moderately.	No.	Percussion dulness normal, though rather large; impulse somewhat feeble; first sound feeble. Pulse 116, irregular; respirations 20. Heart irritable.
Charles L.	34	17 "	Good; uses tobacco moderately.	No.	Percussion dulness normal; first sound short; second distinct. Pulse 90; respirations 18.
A. C. F.	26	9 "	Good; is a hard smoker.	Not troubled with palpitation, but often with shortness of breath and neuralgic pains in right side.	Percussion dulness increased; impulse slow and heavy; first sound dull. Pulse 60; respirations 20.
Frank S.	23	4 "	Good; uses tobacco moderately.	No palpitation; occasional shortness of breath; pain on both sides of lower part of chest, particularly on the left; never rheumatism; spat blood 16 months ago after blowing.	Percussion dulness rather large; impulse strong; faint systolic murmur over left ventricle; second sound distinct—slight dilated hypertrophy. Pulse 114; respirations 20.
Daniel G.	38	22 "	Is not very strong; uses tobacco to excess.	Palpitation on rapid walking and on blowing, yet rarely shortness of breath, has pain in left side.	Percussion dulness normal; impulse of moderate strength; first sound short; second very distinct. Pulse 66; respirations 18.
William L.	18	3 "	Good; does not use tobacco.	No; occasionally has chest pain.	Percussion dulness normal; impulse distinct; first sound rather heavy. Pulse 72 and full; respirations 18.
William D. F.	25	10 "	Good; does not use tobacco.	No.	Diameters and sounds of heart normal; first sound well marked. Pulse 74; respirations 20.
F. L.	25	8 "	Good; uses tobacco moderately.	Yes, on blowing; has also at times pain over region of heart.	Percussion dulness large; impulse strong, extended; first sound heavy; second sound moderately distinct. Pulse 66; respirations 18.
David McG.	31	12 "	Fair; uses tobacco moderately.	Yes; but suffers more from palpitation than shortness of breath; has occasionally attacks of giddiness.	Percussion dulness normal; impulse not forcible; first sound short, second distinct. Pulse 110; respirations 20. An irritable heart.
Frederick H.	35	18 "	Fair; uses tobacco freely; is constipa-	No.	Cardiac dulness normal; first sound short; second sound distinct. Pulse 112; respirations 22.

Name.	Age.	Length of Time a Glass-blower.	General Health and Habits.	Whether he Suffers from Palpitation and Shortness of Breath, etc.	Physical Signs.
John S.	30	11 years.	Uses tobacco to excess; enjoys good health	No; has occasional chest pains; his work is very heavy, though only 4 hours a day.	Cardiac dulness normal; first sound short; second sound distinct; beats irregular, uneven. Pulse 90; respirations 26.
George S.	42	27 "	Excellent; uses tobacco moderately.	No.	Cardiac dulness normal; impulse extended, jerky; first sound short; second very distinct. Pulse 98, intermitting every third and fourth beat; respirations 21. A typical irritable heart.
Henry E.	30	9 "	Fair, but is a dyspeptic and suffers from piles; uses but little stimulant.	Occasional chest pains; no palpitation.	Cardiac dulness normal; first sound fair; second sound distinct. Pulse 78; respirations 18.
Benjamin D.	31	7 "	Good; uses tobacco rather freely.	No.	Cardiac dulness normal; first sound well marked; second good. Pulse 66; respirations 18.
Samuel N.	28	9 "	Good; uses tobacco freely.	No; but has chest pains.	Cardiac dulness normal; first sound rather short; second good. Pulse 90; respirations 18.
John N.	27	6 "	Good, but has dyspepsia; uses no liquor and but little tobacco.	Yes, both.	Cardiac dulness normal; first sound short, indistinct; second moderately distinct. Pulse 90; respirations 18.
William W.	32	10 "	Excellent; a moderate smoker.	No.	Cardiac dulness normal; first sound moderate; second distinct. Pulse 78; respirations 20.
George K.	39	22 "	Good; uses tobacco very moderately.	Has shortness of breath and chest pains.	Cardiac dulness normal; first sound sharp, short; second very distinct. Pulse 92; respirations 22.
Harvey W.	40	16 "	Excellent; uses tobacco moderately.	No.	Cardiac dulness normal; first sound moderate; second distinct. Pulse 70; respirations 18
Harry F.	28	7 "	Good.	No chest pains or palpitation; has shortness of breath.	Cardiac dulness normal; beats of heart unequal; first sound sharp; second moderately distinct. Pulse 86; respirations 19.
William B.	33	13 "	Good; uses tobacco and liquor moderately.	No; occasional chest pains.	Cardiac dulness and sounds normal. Pulse 72; respirations 18.
Joseph P.	22	1 year (a very moderate blower.)	Health fair; uses tobacco to excess.	Occasional palpitation.	Cardiac dulness normal; impulse extended; first sound short, sharp; second very distinct. Pulse 96; respirations 21.

Next to the question of occupation as influencing cardiac disorder, concerning which, if time permitted, much more might be said, I shall briefly call your attention to the effect of some favorite amusements. There is *dancing*, which I have known over and over again, when excessively indulged in, lead to very great irritability of the heart. A lady whom I attend, whose devotion to society is largely due to her fondness for dancing, has always a functional disturbance of the heart at the end of a winter season, is better in the spring, but is sure to come home in the autumn from a watering-place with considerable over-action of the heart. Nay, the disturbance of the organ from dancing may pass, as all the forms of cardiac excitement we have been examining, into organic trouble; especially may it do so in lads and young girls. Here is an illustrative case:—

James M., twenty-two years of age, came under my observation in 1868, with marked dilated hypertrophy; the impulse was very extended and forcible; both ventricles, especially the left, were much enlarged; the valves were sound. Careful inquiry could detect no cause for the complaint excepting the one to which the young man steadily attributed its origin six years since—excessive exercise, dancing violently for an hour and a half every night for six months. There had not been the least palpitation, shortness of breath, or disturbance in health previous to the six months' dissipation. These symptoms have become persistent.

The influence of *rowing* in producing disease of the heart has been of late years much debated. My experience with reference to the matter amounts to this: If there be a tendency to irritable heart, or to any cardiac affection, even to angina, it is aggravated by rowing, but otherwise, and not too steadily followed, this exercise is beneficial. I am glad to be able to record this as the result of observation; for anything that, on grounds but the most sufficient, interferes with manly pastimes

and exercises, does great harm, especially in a country where our young men, as a class, are too apt to neglect them. Much of, or all the injurious effect could be, in any case, avoided by the oarsman consulting a careful physician prior to his taking up boating as his chief amusement, and by having his heart examined from time to time. Nor can I find that the health of many has been injured, in after life, by active rowing in their youth; and for confirmation of this view I refer you to an admirable and much fuller examination of the subject than I have been able to make—to the interesting book of Dr. Morgan, lately published, entitled, "University Oars," being a critical inquiry into the after-health of the men who rowed in the Oxford and Cambridge Boat Race from the year 1829 to 1869.

The physical consequences of *base ball* are in this country matters worthy of careful attention; for base ball is our national game; it is to our young men what the game of ball and foot racing were to the Grecian youths, or what cricket still is to the scholars of Eton and Harrow. And I am glad to report that I have seen it responsible for but few disorders—not even for as many cardiac affections as might be supposed. True, I have known some for which it is chargeable, and usually in growing lads who had indulged in it immoderately. Here are a couple of cases in point that applied for relief at the Jefferson College clinic:—

T. S., sturdy and small, twenty years of age; never had palpitation before he began to play base ball violently four years ago. After a time he noticed shortness of breath in playing; but, nothing daunted, he continued until, after three or four years, he found it impossible to take an active part in the game. His habits, in all respects, were good; he was a moderate tobacco chewer; not a smoker. The heart was very much hypertrophied, without valvular trouble. Considerable

improvement followed under aconite given with gentian, but not a cure.

B. K. (Case-book, p. 96, April, 1874), age 14, had been playing ball for four years. Two years ago began to notice palpitation after running; and, for a short time previously, shortness of breath on active exercise or on going up stairs. The impulse of the heart was found to be very extended; the first sound dull and heavy; the percussion dulness measured transversely $3\frac{3}{4}$, perpendicularly $3\frac{5}{8}$, obliquely $5\frac{1}{4}$ inches.

Now these cases of dilated hypertrophy were undoubtedly due to the constant exertion, and, as with rowing, any one having a tendency to palpitation, or finding it induced, ought to stop playing, or play very seldom. Instances like those quoted would thus become still rarer than they are. Under all circumstances, in the not too steady addiction to the game, in the intervals of rest, lies the secret which makes the violent exercise beneficial and not baneful. To study further the effects of the game, I have carefully examined a club of professional base ball players, who, of course, only play at certain seasons, and even then not incessantly, and I found their cardiac condition, as well as their general health, excellent. This is the record:—

A. J. R., age 34; height 5 feet 6 inches; weight 148 pounds. Has been an active base ball player for seventeen years; a professional player for ten. He chiefly plays second base, or acts as a fielder. His general health is excellent. After severe exertion he has at times a sharp twitch in the region of heart, but he never suffers from palpitation or shortness of breath. He has a wide chest; the respirations are 22 in the minute; the pulse is 72, firm, and strong. The impulse of the heart is rather forcible, and is felt in two intercostal spaces. The first sound is weighty, but on percussion the diameters of the heart are found to be normal.

John E. C., age 23; height 5 feet $7\frac{1}{2}$ inches; weight 170

pounds. Has been a professional player for eight years, chiefly as catcher; played occasionally before. Though he runs a great deal, is never troubled with palpitation or shortness of breath. His health is, indeed, excellent. The chest measures 35¾ inches in circumference. The pulse is 75, and full; the respirations are 18. The impulse of the heart is only felt in one intercostal space; the sounds and the percussion dulness are normal.

E. B. S., age 24; height 5 feet 8½ inches; weight 155 pounds. Has been a professional player for four years; for four years before played considerably. In the present club acts chiefly as third base, or short stop. Has always been in good health, but his health has been particularly good since he has been a base ball player; he never suffers from palpitation or shortness of breath. The chest measures 33½ inches in circumference; the pulse is 72, rather full. The respirations are 22 in the minute. The impulse of the heart is felt in two intercostal spaces, but is not very forcible. The first sound is well defined, somewhat heavy, the second distinct; the percussion dulness, though well marked, is not abnormal.

J. V. B., age 21; height 5 feet 10½ inches; weight 169 pounds. A professional player for one year—mostly second base—but has played for eight years in all, and actively for five. Lives largely on bread and molasses; is always in excellent health; has neither palpitation nor shortness of breath, not even after playing. He states, however, that he "blows" if he chews tobacco, and knows of many others who do the same. The chest measures 35⅝ inches; the pulse is 60, and full; the respirations are 16. Diameters of the heart and impulse are normal, the latter is of moderate force; the first sound perhaps a trifle weightier than common.

A. W. G., age 24; height 5 feet 9 inches; weight 155 pounds; the left field of the nine. He has been a professional player for five years; has played in all for eight. Attributes

his good health to the ball exercise. Six years ago he recovered from an attack of typhoid fever, two years ago from cerebro-spinal fever. Never suffers from shortness of breath or palpitation. The width of his chest is 33 inches; the pulse is 72, and full; the respirations are 18. The impulse of the heart is felt in two intercostal spaces; its force is moderate, and the percussion dulness, though large, is not abnormal; the first sound is, however, decidedly heavier than usual.

W. M. McG., aged 23; height 5 feet 8 inches; weight 152 pounds. Acts as short-stop or as catcher, and his fingers are jammed up from the force of the balls. Has played for eight years, three of which as an amateur. Suffers at times from dyspepsia, and has then occasionally palpitation; but this not during or after playing. Does not use tobacco or liquor, and excepting from the attacks of indigestion, has not been sick in his life. The measure round the chest is 34 inches—on full inspiration 36½. The pulse is 78; the respirations 20. The sounds of the heart and percussion dulness are normal; the impulse is well marked.

J. D. McB., age 29; height 5 feet 9 inches; weight 142 pounds,—the pitcher, as such, does much hard work, and has, he thinks, been pitcher longer than any man in the country. Has been a base ball player for thirteen years; enjoys excellent health, particularly during ball season, and never feels much fatigued after playing, nor has he ever shortness of breath or palpitation; is not a user of tobacco. The chest measures 33¾ inches. The pulse is 72; the respirations are 18 in the minute. The impulse of the heart is neither strong nor extended; the first sound is short, indistinct, somewhat murmurish at apex, yet there is no distinct murmur; the second sound is very sharply defined; the diameters on percussion are normal.

W. D. F., age 30; height 5 feet 6 inches; weight 138 pounds. Plays either second or first base; has been a professional

player for seven years, but has played ball since a boy. For the last few years has not been in as good health as usual, being at times a dyspeptic, and subject to biliousness—also to a winter cough, for which he spent a winter in the South. There is, however, no organic disease of the lungs discernible, though the facts mentioned may account for the cough, the shooting pains on the left side of the chest, the palpitation and shortness of breath noticed occasionally after running, but never lasting more than a few minutes—nor, indeed, appearing until resting after the match. The chest is well developed; the pulse 84; the respirations are 22 in the minute. The impulse of the heart is felt in two intercostal spaces, is of rather more than average force; so is the first sound heavier than usual, the second sound is distinct, but all are still within normal range, as is the well-marked percussion dulness of the cardiac region.

A. C. A., age 22; height 6 feet 2¾ inches; weight 206 pounds, with a full chest, measuring 36 inches; a splendid specimen of a man. He plays right field or third base, and has been a professional player for four years, but has been devoted to ball since boyhood. Never feels short of breath, even after a long match, and is always in perfect health. The pulse is 72; the respirations are 18 in the minute. There is nothing about the impulse, the sounds, or the size of the heart requiring comment. The pulse at the wrist does not seem so strong as the distinct cardiac impulse would imply.

From the statements made you will draw then this conclusion, that as regards the effect on the circulation, all active, even violent exercise, is only injurious when too steadily persevered in; and that it is the intermitting which protects, and which is the cause why these exercises and pastimes are less productive of cardiac affection than the hurrying and impeding of the circulation, occasioned less palpably, but more constantly, by certain occupations. Of course, in persons in ad-

vancing years, or when degenerative tissue changes are taking place, violent exercise, even short, may be the cause of a tear or injury; but I am speaking chiefly of the effect produced at an age at which such exercises are usually resorted to. Still, even then, as you have seen, there may be mischief, and you will have learned how a number of occupations, and many of our amusements, may lead to cardiac affection, sometimes by textural alterations, produced in any part of the heart or great vessels, but more usually by functional disturbance first, which, in its turn, ends in dilated hypertrophy. A valve trouble, when caused, is usually connected with the former class of cases. Yet I believe that the dilated hypertrophy of the second may terminate in valvular disease by the valve having become incompetent to close the enlarging orifice, which stretches as the cavities of the heart dilate and the muscular walls thicken. That this really happens you will see from the case I am about to relate to you, which, though it is not apposite as regards the cause of the dilated hypertrophy, is so as to the subsequent development of valve disorder.

B. L., a colored boy, thirteen years of age, was admitted in January, 1874, into the Pennsylvania Hospital. He stated that he had pneumonia about four years ago, and that during convalescence he was seized with acute rheumatic fever, which, though it greatly crippled his joints, did not confine him to bed. After his recovery he resumed his occupation of a farm hand, and notwithstanding that he began to suffer from shortness of breath and palpitation for two months before he sought admission into the hospital, worked laboriously for six weeks more, until his feet began to swell. When examined he was found to have considerable œdema of the extremities, much distress in breathing, and a frequent, irregular pulse. The præcordial space was notably prominent, and the impulse of the heart heaving, and distinctly visible even at a distance. The size of the organ was greatly increased; the transverse

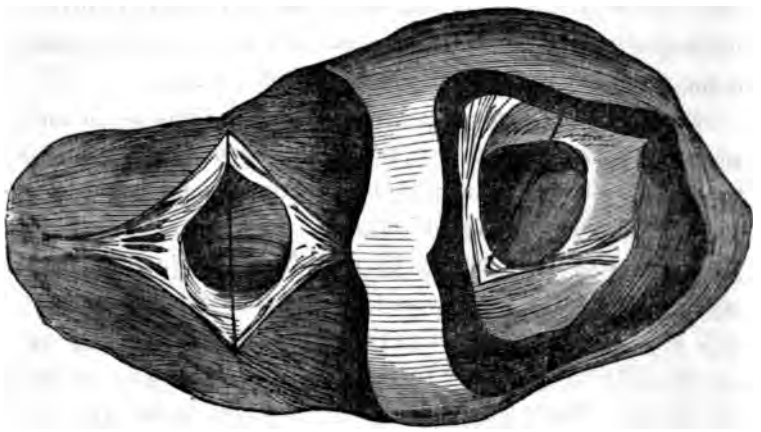
percussion dulness extended from beyond the right edge of the sternum to the axillary line. A systolic murmur was heard all over the cardiac region—and, in truth, over the whole of the left chest. Its point of intensity was at the apex, where it was distinctly musical. The second sound at the aortic cartilage was somewhat obscure; that at the pulmonary cartilage well pronounced—indeed, accentuated. The veins of the neck were swollen, but did not pulsate. A considerable effusion existed in the right pleural sac; the urine was scanty, of high specific gravity, but not albuminous.

Under treatment, chiefly by digitalis, scoparius, and iron, the boy was for a time greatly relieved, and the watery swelling almost disappeared. But the improvement was not permanent; the dropsy became very general, and he died exhausted, March 27. There was no difference to record in the physical signs excepting that, late in the case, the murmur lost a good deal of its musical character.

The autopsy, made five hours after death, showed considerable effusion in the abdomen and in the pleural sacs, an enlarged, nutmeg liver, a spleen firm, small in size, and very black, and the left lung adherent to the pericardium. This, with the inclosed heart, was found to occupy the whole of the lower part of the mediastinum, and to prevent either lung from being visible. The layers of the sac were tightly adherent, especially around the base, where the false membrane was very thick. The heart was enormously increased in size, the cavities were all dilated, especially those on the right side. The walls of the right ventricle were thin, in some places not more than a line or two in thickness; the walls of the left ventricle thickened. The valves of the aorta and pulmonary artery were found to be sound; those of the tricuspid valve, thin, flexible, and without roughening, still appeared competent to close the dilated tricuspid orifice. Not so with the mitral; they too were healthy, though not quite as thin and yielding as the tricuspid,

but they were inadequate to close the enlarged mitral opening. In the accompanying drawing (Fig. 2) the heart is laid open

Fig. 2.



along the septum, and the flaps are turned back, so that the valvular apparatus between the auricle and ventricle of each side shows. The valves are stretched with bristles, but it may be seen how utterly insufficient those on the right hand side of the drawing, representing the mitral valves, are to close the gaping orifice.

This case proves that dilated hypertrophy may lead to valvular disease. And no matter how the enlargement of the heart is brought about, the same effect may follow. Now, as we have found that dilated hypertrophy may succeed functional disorder from over-work or strain of the organ, we perceive the links of a chain, at one end of which is merely deranged action, at the other valvular affection; and for the latter to ensue, the stretching and increase of the heart must happen first. But you will ask me, does this often occur? I answer, no. Functional disorder of the heart from excitement of the organ is very common; organic changes in the walls and cavities, especially what is technically known as dilated hypertro-

phy, consequent to the over-action and strain, not uncommon Yet this is, on the whole, not often followed by valvular imperfection. Probably the majority of instances of valve disease, resulting gradually from strain or over-work, have an inflammatory or other tissue change in or near the valve, preceding the affection.

You must allow me, in conclusion, a few words as to the management of some of the disorders of the heart we have been considering, produced by strain and over-excitement of the organ. Of course, I can only do so in very general terms, and not with the details of a clinical discourse. It is evident that the cause of the trouble must be removed if we are to hope for permanent improvement; whether that cause lie in derangement of the liver, stomach, or nervous system, or in the nature of the patient's vocation. But besides, when a heart is over-worked, or over-excited, we find certain agents to produce a most salutary effect. One of these is rest in the recumbent position. You know that there is a natural difference between the movements of the heart in the standing and lying posture. But, unless you have carefully noted the matter, you will scarcely believe how great the difference is in an excited organ. Its action may become twenty, thirty, forty beats in the minute slower. If, then, your patient rest on his back two or three hours a day, he will help himself materially; and, circumstances favoring, a day or two spent in bed, will not be time thrown away. Ice, applied to the præcordial region, is another agent that benefits, and will prove of service in some stubborn cases. Of medicines, I have found digitalis, belladonna, and the bromides, to be the most generally available; while in cases of beginning hypertrophy, no drug, in my experience, compares with aconite, steadily employed. But, I repeat, to endeavor, in any form of the affection, to remove the cause, is a prerequisite for success.

Yet the greatest gain from the study of the subject, its most

brilliant results, will come, if by the knowledge acquired of the manner of the production of heart-trouble, we can prevent its increase. The public, in the matter, err through ignorance, and it is our place to show them that the heart will not, any more than the brain, endure incessant and exhausting labor and excitement; that there are heart-weary as well as brain-weary persons; to point out how some occupations predispose to the disorder more than others, and how, therefore, the dictates of science, humanity, and true economy, alike demand that they be less continuously pursued; to make clear to them that certain habits—such as bolting the food, and constantly rushing after cars—may lead, indirectly or directly, to consequences little thought of; and how it may be the heart that bears the brunt of the irregularity and abuse, and not the organs which would appear the ones most likely to suffer. And you and I must make it part of our duty to impress these truths, and thus to prevent those slight beginnings of ailment which we both know may have grievous endings.

SMITHSONIAN MISCELLANEOUS COLLECTIONS.

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THE TONER LECTURES

INSTITUTED TO ENCOURAGE THE DISCOVERY OF NEW TRUTHS FOR THE ADVANCEMENT OF MEDICINE.

LECTURE IV.

A STUDY OF THE NATURE AND MECHANISM OF FEVER.

BY

HORATIO C. WOOD, M.D.

DELIVERED JANUARY 20, 1875.

WASHINGTON:

SMITHSONIAN INSTITUTION.

FEBRUARY, 1875.

RADCLIFFE

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THE "Toner Lectures" have been instituted at Washington, D. C., by Joseph M. Toner, M.D., who has placed in charge of a Board of Trustees, consisting of the Secretary of the Smithsonian Institution, the Surgeon-General of the United States Army, the Surgeon-General of the United States Navy, and the President of the Medical Society of the District of Columbia, a fund, "the interest of which is to be applied for at least two annual memoirs or essays relative to some branch of medical science, and containing some new truth fully established by experiment or observation."

As these lectures are intended to increase and diffuse knowledge, they have been accepted for publication by the Smithsonian Institution in its "Miscellaneous Collections."

The FIRST LECTURE of this series was delivered March 28, 1873, by Dr. J. J. WOODWARD, "On the Structure of Cancerous Tumors and the Mode in which adjacent parts are invaded." Published by the Smithsonian Institution, November, 1873. 44 pp. 8vo.

The SECOND LECTURE was delivered by Dr. BROWN-SÉQUARD, but the manuscript has not been furnished for publication.

The THIRD LECTURE was delivered May 14, 1874, by Dr. J. M. DA COSTA, on "Strain and Over-Action of the Heart." Published by the Institution, August, 1874. 32 pp. 8vo.

JOSEPH HENRY,
Secretary Smithsonian Institution.

SMITHSONIAN INSTITUTION,
Washington, February, 1875.

LECTURE IV.

Delivered January 20, 1875.

A STUDY OF THE NATURE AND MECHANISM OF FEVER.

By Horatio C. Wood, M.D.

I have settled upon a Study of Fever as the subject of this evening's discourse, partly because my attention has long been attracted to the phenomena of fever, and partly because the subject is of such general character that every medical man must share the interest in it. In approaching a physiological or pathological process for the purpose of studying its mechanism and nature, its essence should, if possible, be first determined. Fever has been defined to be "an acute derangement of all the functions;" this it certainly is. Yet the definition gives to the mind no idea of the phenomena of fever. When these are analyzed, it will be found that the most important of them are capable of being grouped in three sets: acceleration of the heart's beat, and disturbance of the circulation; nervous disturbance; elevation of bodily temperature. The first step in my study of fever to-day shall be to demonstrate that of these groups, the first two are merely secondary to and dependent upon the third, *i. e.* that the essential part of fever is elevation of temperature.

A misunderstanding as to my meaning may possibly arise from the unfortunate double value or meaning that attaches to the word fever. It is hardly necessary to state that I am using the term in its abstract sense only. In a fever the pulse-rate and the nervous disturbance, for instance, are dependent

upon various circumstances; in fever, I expect to show that they are due simply to the elevation of temperature.

The demonstration shall consist in proving the following propositions; their truth once acknowledged, the final conclusion is inevitable.

First. External heat applied to the body of the normal animal, so as to elevate the temperature, produces derangement of the nerve functions, of circulation, etc. etc., precisely similar to those seen in natural fever; the intensity of the disturbance being directly proportionate to the rise in temperature.

Second. Heat applied locally to the brain or to the heart produces in the functions of the organ those disturbances which are familiar phenomena of fever, the intensity of the disturbance being directly proportionate to the excess of heat in the organ.

Third. The withdrawal of the excess of heat in fever is followed by a relief of the nervous and circulatory disturbances.

When a dog, cat, or rabbit is shut up in a box heated either by the sun's rays or by artificial means, the temperature of the animal rises, and at the same time the pulse-rate becomes *pari passu* more rapid, the breathing grows more and more hurried, and the restless, uneasy movements of the victim show the general distress it is suffering. As the temperature increases the nervous disturbance becomes more and more apparent; stupor, coma, partial paralysis, convulsions, and finally death by arrest of the respiration occur. These phenomena sometimes come on gradually, but sometimes are developed suddenly.

The temperature at which death occurred in my experiments, varied in the rabbit from 111 to 114½° F.; in the dog it was about 111° F. In man a similar series of phenomena are developed by exposure to excessive heat, although

owing to man's extraordinary power of cooling his body, and of protecting it against cold, he is able to bear extremes of temperature far beyond the points which would prove fatal to any given species of animal.

It must not be lost sight of, however, that man is no more able than the animal to bear an excess of internal or bodily heat. He resists the heating of his body from without, but when his body is heated his arterial and nervous system are found to be as susceptible to the influence of an excessive temperature as are the same organs of the animal. The terrible mortality of sunstroke, or, as it is called with more scientific correctness, thermic fever, is a witness to this susceptibility.

The facts and arguments which have thus been briefly sketched are certainly sufficient to prove that an exposure to external heat will suffice to develop all the phenomena of fever. If any of my audience is desirous of seeing this matter developed more in detail, he will find, what he seeks, in my little brochure on Sunstroke.

The first proposition having been disposed of, the consideration of the second is next in order.

For the purpose of determining the action of heat upon the nerve centres, some years since, in a number of experiments upon cats and rabbits, I caused a stream of hot water to flow through a pig's bladder, fitted as a sort of bonnet to the head of the victim. It is evident that with small animals we can in this way heat the brain without heating materially the remainder of the body. These experiments have been already reported in full,* and I shall therefore here only mention their results. It was found that coma, with or without convulsions, was produced. Sometimes the stupor came on gradually, hebetude slowly deepening into coma, but in other

* Thermic Fever, Philad. 1872, pp. 76 and 82.

stances the unconsciousness was developed very suddenly. n either case death was finally brought about by paralysis of espiration or apnœa. A thermometer plunged into the brain directly after death indicated a temperature of 113° in a cat, and of 111° F. in a rabbit. In a second series of experiments the skull was opened, and the thermometer placed in the brain so soon as there was decided coma. The brain temperature under these circumstances in the cat was determined to be about 108° F. As in these experiments it was found that pouring cold water upon the head at once relieved the coma, the conclusion is logically irresistible that the coma was produced by the heat. The degree of temperature at which, in the locally heated brain, consciousness was lost, and at which death occurred, was found to closely correspond with the degrees at which the same phenomena occurred when a general augmentation of the bodily heat was produced by exposure to the sun, or to artificially heated air.

It having been determined that heat applied to the brain of an animal is capable of causing cerebral symptoms similar to those seen in fever, the next point to be studied is the action of the same force upon the heart.

In an admirable paper on this subject* Dr. T. Lauder Brunton has collected the evidence, and repeated the experiments so thoroughly, that it is unnecessary here to discuss the matter at length, and I shall content myself with stating the chief facts; referring the reader to Dr. Brunton's paper for the proof. When the cut out heart of a frog is exposed to a rising temperature, the cardiac pulsations constantly become more and more rapid until a heat limit is nearly reached, at which the action of the heart ceases. The increase in the rapidity of the movements of the heart is not in direct relation to the increment of temperature; at first the increase of move-

* St. Bartholomew's Hospital Reports, vol. vii.

nent is slow, but the rapidity of the increase becomes more and more rapid as the temperature rises until the maximum rate is reached. Panum has found that the cut out heart of the rabbit responds to heat in the same way as does that of the frog, and Brunton has experimented by bringing the rabbit profoundly under the influence of the chloral, and then surrounding him with a jacket of hot water. These experiments of Brunton are of course completely parallel with those in which I exposed animals in hot air; in both instances there was a great rise in the rapidity of the cardiac action.

It is, of course, impossible to experiment directly upon man, but the brain and the heart of man must be subject to the same laws, so far as regards gross forces like heat, as the brain of other animals. It is simply inconceivable that what has been proven as true of the lower animals is not true of man. Moreover, we have very direct evidence that heat does affect the organs of man as it does those of animals.

Thus we have an elaborate study on the action of fever heat upon the pulse of man, by Dr. C. Liebermeister, who analyzed the records of 280 cases of acute disorder not directly affecting the brain or heart, accompanied by a rise of temperature, and mostly observed by himself. The following table represents the minimum, maximum, and mean:—

Temperature (Centigrade)		37°	38°	39°	40°	41°	42°
Pulse	Minimum	45	44	52	64	66	88
	Maximum	124	148	160	158	160	168
	Mean	71.6	88.1	97.2	105.3	109.6	121.7

There are so many factors entering into the causation of increased action of the circulation in febrile diseases, that it is to be expected that the minimum and maximum can scarcely obey any fixed law, but in a very large number of observations the action of the general cause of the increased pulse-rate

becomes manifest, and the table shows with what great regularity the pulse rises with the temperature.

In regard to animals, then, our second proposition has been actually determined to be true by rigid experimentation; in regard to man, it is, of course, from the nature of the case, impracticable in a Christian country to make an actual demonstration, but it is, humanly speaking, a scientific impossibility that the proposition be other than true.

The proof of the third proposition is contained in the following experiment, which I have repeated several times with similar results: A rabbit was placed in a heated atmosphere, and allowed to remain there until consciousness was entirely lost. He was then taken out and plunged into a bucket of cold water. The temperature of the body fell very rapidly to the normal point, that of the water rising two degrees, and consciousness returning so soon as the body was cooled. In a few minutes the rabbit was able to walk, and the next day had entirely recovered. A few moments' more exposure to the high temperature would have killed the animal; undoubtedly, the consciousness was suspended by the action of the heat upon the brain, and undoubtedly it was restored by a withdrawal of that heat.

I have been so fortunate as to have the opportunity of observing in man a series of phenomena perfectly parallel to that just narrated as occurring in the rabbit.

I have a number of times, in typhoid fever with high temperature, seen stupor, delirium, subsultus tendinum, etc., subside under the use of packing in sheets wrung out of ice-water, and the testimony of Jurgensen, Liebermeister, and others to the same effect is simply overwhelming. The following single instance of so-called cerebral rheumatism is so striking and so demonstrative that it would suffice of itself at once to prove and illustrate the proposition.

Some time since, upon entering my ward in the Philadelphia

Hospital, my attention was instantly attracted by the expression upon the face of a patient. He was a young, temperate Irishman, twenty years of age, and of a vigorous physique, who had passed through a severe attack of inflammatory rheumatism without cardiac complications, and was suffering from a relapse, which first appeared as a subacute inflammation of the knee. I had not seen the man the previous day, but I find in the note-book of Dr. Bruen, my interne, the following:—

"Second day of relapse. This morning an acute inflammation of the wrist-joints has set in; the fever is very high; temperature in the axilla 104° Fahr.; ordered potassii bicarb. gr. xx every two hours."

As we walked to the bed, in reply to a question, "What ails our rheumatism patient?" Dr. Bruen said, "Nothing, unless it be pericarditis. When I saw him at 10.30 A. M. there was much less inflammation of the joints than the preceding morning, and although his temperature was as it had been, 104° Fahr., and, as I thought, a pericardial friction-sound could be heard, yet the man was doing fairly; perfectly rational, with a good pulse." It was now about half-past twelve, and our patient was apparently dying. The pulse was between 160 and 170, exceedingly feeble and thready; the pupils strongly contracted, though not to pin-points; the respirations fifteen per minute, exceedingly irregular, mostly deep, jerking, and interrupted; the skin pale and dry; the consciousness completely lost, violent shaking and shouting in the ear only eliciting a few grunts; the temperature in the axilla 108½° Fahr.; the wrists pale, and no signs of pain elicited by violently moving them. On ausculting the heart I could find no murmur; the first sound was very feeble, somewhat prolonged, and the second sharply accentuated.

Coming to the conclusion that our patient was dying of heat, we determined to cool him at all hazards, and, as the surest and most rapid means, to employ the cold bath.

The following is the record made at the time:—

1.24 P. M. Patient put in a full bath at 60° F.

1.25½. Shows signs of consciousness; will put out the tongue when loudly asked to do so.

1.27. Seems to recognize that the bath is very cold, and struggles to get out.

1.30½. Man has a fair degree of rationality. He has been in six minutes and a half, and now ordered to be taken out at once.

One minute after the bath.—The patient was partially wiped and laid directly upon a gum blanket, and covered only with a sheet, in a room whose temperature was about 65° to 70° F. He has just received a hypodermic injection of six grains of quinine.

Three minutes.—Temperature in axilla 94° F.; in mouth, 105°⅘ F.

Eight minutes.—Temperature has been steadily falling; is now 103° F. in mouth. The man has become perfectly rational, and answers to his name.

Pain and sensibility have returned somewhat to the wrist. Ice-bladders were applied to head ten minutes after bath. The attendants state that he passed a very little urine at 11 o'clock; bladder is now entirely empty.

Twenty-four minutes.—Temperature in mouth 104⅘°.*

2 P. M. Pulse 140, weak. One-half fluidrachm of tincture of digitalis, with two ounces of raw whiskey, were given.

2.45. Temperature in mouth 101°, in axilla 102°, in rectum 102⅘°.

4.15. Digitalis and whiskey were repeated, but were immediately vomited. Pulse 140; temperature 101⅘°. No urine had yet been secreted into the bladder. He was cupped ten ounces of blood over the kidneys. Ordered an enema, also ʒij of acetate of potassium every two hours, with two ounces of infusion of digitalis applied on cloths to the abdomen. Small quantities of milk and lime-water were given at intervals.

8 P. M. The patient says he feels very much better; recollects nothing of the past, excepting that in the morning he was very dizzy, and just afterwards became unconscious. Application of digitalis renewed. Pulse 128, temperature 102½°.

12 midnight. Pulse 116, much stronger; temperature 99½°. Complains of feeling cold, but in other respects is better. Has passed about a pint of urine. Since his bath he has been lying on the gum blanket, covered only by a sheet, as at first. He is now ordered to be put into a warm bed, and covered with blankets. Ice still kept applied to head. Other treatment continued, excepting the digitalis poultice.

April 9, 9 A. M. Is much better. First sound of heart very weak;

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* Up to this point the temperatures were taken by myself or under my immediate supervision. After this by Dr. Bruen.

second sound very strongly accentuated, both pulmonary and aortic. There is no murmur.

Was ordered to take, during day, ʒss citrate of potassium, in one-half pint of water, every two hours; ten drops tincture of digitalis, and two grains quinine, every three hours; one-half pint milk every four hours. Temperature 100¼°, pulse 120.

At 12, temperature 101¾°, pulse 124.

3 P. M. Temperature 101°, pulse 120.

8 P. M. Treatment all carried out, excepting the milk, which caused great nausea and vomiting; it was therefore given one ounce at a time, and about one pint, with eight ounces of beef-tea, was retained during the day. Medicine was all retained without difficulty. He has passed urine freely during the day—about three pints in all. Temperature 102½° F., pulse 122. He complains of severe pains in wrist-joints and in the shoulders. Treatment continued during night, when awake. Five-grain Dover's powder ordered; the same dose to be repeated at 12 o'clock, if awake.

April 10, 9 A. M. The patient slept during the past night, for the first time since the 8th. Took his medicine without any nausea being experienced. Says he feels much better. Ice-cloths to head discontinued; other treatment continued. The condition of joints of wrists and shoulders is about the same as on the morning of the 8th; they are very swollen and painful. Pulse 120, temperature 101° F.

6. P. M. Condition as in morning. Has taken one quart of milk during the day. Temperature 100½° F., pulse 116.

April 11. Temperature 100½° F., pulse 92. Quiniæ sulph., fifteen grains daily, ordered. Digitalis and the potassium salt continued.

April 12. Is very much improved. Pulse 96, temperature 100°. Citrate of potassium ordered every three hours; thirty drops tincture of digitalis in twenty-four hours.

April 14. Feels very little pain in joints, has good appetite, and looks, indeed, almost well. Citrate of potassium discontinued. Iodide of potassium, ten grains, t. d.; tincture of chloride of iron, gtt. xx, t. d. Quinine continued. Temperature 99°, pulse 72. Tincture of digitalis stopped.

May 4. From the time of previous note he steadily progressed towards entire convalescence under a tonic treatment, and has been for some days going about freely. To-day he is to be discharged, perfectly well. There is no cardiac lesion whatever.

Let me call your attention, gentlemen, to the rapidity with which, under the influence of the cold bath, the symptoms abated in our patient. He was not in more than a minute and a half before he exhibited very distinct signs of returning con-

sciousness, and in three minutes had sense enough to attempt to get out of the tub. What could the bath do to affect the man so much but withdraw the heat, which, as you know, we have found to be a poison to the nervous system? That the heat was withdrawn, the thermometer proved. If the drowsiness had been due to simple congestion of the brain, very certainly would the bath, by driving the blood from the surface, have increased the trouble.

It must be borne in mind that this case is by no means unparalleled; similar instances of the good effects of the sudden withdrawal of heat in rheumatic hyperexia have been reported by both English and German observers, and recent Continental literature is full of reports of the relief of nervous symptoms in various pyrexias by the abstraction of heat.

These cases, when taken in connection with the parallel experiments upon the lower animals, establish to my mind with absolute certainty the truth of the third proposition.

We have found, then, that excessive heat is present in fever; that this excessive heat, when present, not only is able to, but is forced, so to speak, by its own attributes, to produce disturbance of the functions of innervation and circulation, and that the withdrawal of the excessive heat in fever is followed by instantaneous relief of the symptoms of disturbed innervation and circulation; surely the conclusion is logically inevitable, that excessive temperature is the cause of the other symptoms of fever—that it is the essential portion; that fever and excessive bodily temperature are synonymous.

It is evident that the increase in the amount of caloric in the body during fever can only occur through a lessened giving off of heat by the body, or by an increased production of heat in the body. Had not so great an authority as Traube (*Allgemeine Cent. Zeitung*, 1863) espoused the theory that the elevation of temperature in the febrile state is due to increased retention rather than increased production of heat, it would

seem scarcely worth while to prove that the chemical movements of the fever patient are vastly above normal. The elaborate experiments of Liebermeister (*Beobachtungen und Versuche über die Anwendung des Kalten Wassers bei Fieberhaften Krankheiten*, Leipzig, 1868), of Kernig (*Reichert's Archiv*, 1860), upon the effects of cold baths in fever and in health, have abundantly proven that fever patients yield a vastly greater amount of heat to the water in which they are immersed from hour to hour than do healthy men, and yet their temperature remains above normal. The proven excessive elimination of carbonic acid in the breath and of solid matters in the urine in fever, the well-known emaciation that fever causes, all bear similar witness to the experiments just quoted, so that it must be received as an axiom, that *the essential part of fever is increased chemical movements throughout the system.*

Having arrived at a clear idea as to what fever is, we are prepared to investigate its mechanism —to determine, if possible, in what way the rise of bodily temperature is produced.

In fever all portions of the body usually are in unison; the increased tissue-change which is at the basis of the elevation of temperature, apparently occurs everywhere throughout the system. It is plain that there are only two bonds of union between all portions of the body, two organs or tissues which fuse, as it were, all parts of the system into one; and that any physiological or pathological process which is equally shared by all must have its origin either in the blood or in the nervous system.

Is fever, then, a hæmic disorder, or is it a neurosis? Very possibly many of you, especially those whose military experience causes pyæmia to be ever present in the thoughts, will reply at once, it is hæmic. In many exanthemata there is undoubtedly, either as a cause or as a result of the disease, an altered state of the blood. In pyæmia a blood-dyscrasia is certainly a primary phenomenon; and in animals we develop

septicæmic fever by the injection of putrid matters into the blood. Let us pause a moment to understand clearly, however, what we mean by fever being hæmic or neurotic. If the poison carried by the blood into all parts of the body acts upon the various tissues everywhere in such a way as to increase in them tissue-change—or if, upon entering the blood, it excites such changes in that fluid as to cause the blood to incite the tissues everywhere to fever, then that fever may be called, with scientific strictness, *hæmic*. Suppose, however, we have a fever-centre in the nervous system, and that irritation of a peripheral nerve is capable of causing fever by affecting that centre, such fever would certainly be a *neurosis*. Granting the existence of a "fever-centre" of this kind the laws of life teach us that there must be poisons capable of acting upon it directly so as to produce fever. Such a fever would certainly be neurotic, although produced through the blood, the vital fluid acting simply as a "common carrier." With this understanding of the terms, certainly clinical proof is at present wanting that the fever of pyæmia, of the exanthemata, or of any so-called blood poisoning is strictly hæmic. It may be due to an action of the poison upon the central nervous system.

There are, however, numerous febrile reactions in regard to whose origin there can be no doubt. Take one of the most common conditions, that due to the irritation of a local inflammation. It is scarcely possible that the inflammation develops any substance which acts as a general irritant to the tissue; it is much more probable that the fever is produced through the agency of the nervous system. Irritative fever comes and goes so quickly, is accompanied by so little perceptible general derangement of the system or of the blood, that it seems as though it were as distinctly the result of irritation of peripheral nerves as is tetanus, with its intense fever.

The intense fever which is sometimes excited by the passage of a catheter, as asserted by Bilroth (*Archiv für Klin. Chi-*

rurgie, Bd. VI., p. 441), is an example of a pure neurosis. It is impossible, in some of these cases, that there can be injury to the urethra, much less any alteration of the blood. The fever is due to a mere local irritation, which effects no local nutritive change, and it must therefore be produced through the nervous system.

The following case of *urethral fever* occurred in the practice of a friend, and may here serve as an illustration :—

——, æt. 40, was treated in the Philadelphia Hospital during August, 1873, for very tight irritable stricture of the urethra. It admitted, when treatment was commenced, only a small-sized whalebone bougie. About two weeks were occupied in treatment by gradual dilatation until it was sufficiently dilated to admit a Holt's dilator, when the stricture was ruptured, after which a No. 12 Thompson's sound was introduced. There was a good deal of subsequent shock and urethral fever, which yielded to treatment. *Four* days afterward, on Sunday morning, the attending surgeon found some contraction in the calibre of the canal, and introduced with difficulty No. 12 Thompson's sound, following it by Nos. 14 and 16. Considerable difficulty was met with in their introduction; the patient suffered a good deal of pain, and bled freely from the urethra. This operation was performed about 12 o'clock; about 3 o'clock the patient had a chill, followed by high fever, thermometer registering 103°–104° F. He was treated by quinine and opium, which controlled the symptoms somewhat; the next day, however, at about 9 A. M. the temperature, in spite of treatment, rose again to 103°. There was an increase during the morning to 104° at ten o'clock. The man was rational; the pain had been relieved by opium; no immediate danger was apprehended. The resident physician (Dr. Bruen) was sent for about three o'clock in the afternoon, with news that the man was dying. He found the patient was entirely unconscious; breathing stertorous; pupils fixed, neither dilated nor con-

tracted, would not respond to light. Temperature had risen to 110½°. Other thermometers were procured, and in fifteen minutes after the temperature taken again in the axilla, mouth, and rectum. In the latter place it was 111¼°, in the axilla 111° F. The man was ordered to be laid in the bath-tub, but there was no water at hand, and when some was procured in half an hour from the time the resident first saw the patient, he was dead. His urine, when drawn by catheter, was scalding hot, but no albumen was found in it, nor any pus.

Post-mortem examination sixteen hours after death revealed only intense congestion of kidneys, and of all the genitalia and pelvic viscera. There was no apparent inflammation of any part of the genital passages. The brain was very much congested, as were also the sinuses of the dura mater, and the vessels of the brain. The brain substance appeared healthy; there was some effusion into the ventricles. There was also congestion of the lungs.

A very curious phenomenon, which is in itself sufficient to prove that fever is not due to a diseased condition of the blood, irritating, or in some way acting locally upon the tissues, is in the confinement, in some cases, of the fever to a part. This is more especially seen in malarial disorders, but is occasionally witnessed in other affections. I have never myself seen such a case, but it is said that sometimes a portion of the body not larger than the finger will pass through all the stages of an ague paroxysm, chill, fever, and sweating. In acute apoplexy I have known of an intense paroxysm of fever confined to the affected side.

It is unnecessary, I think, to dwell upon this point more in detail. The conclusions to be drawn from the clinical consideration of the subject are: in some cases fever is undoubtedly a neurosis; whilst in other cases clinical medicine is unable to decide with certainty whether the elevation of temperature is neurotic or hæmic.

Having investigated the mode of origin of fever from the clinical standpoint, as far as we are able, it is evident that we must supplement this study by an experimental investigation. As it has been shown that the elevation of temperature is at least sometimes brought about through the agency of the nervous system, the experimental inquiry will first be directed to discovering to what extent, and in what way, the nervous system does influence animal temperature.

In 1870 P. Heidenhain announced (*Pflüger's Archiv*, p. 504) that when a sensitive nerve is stimulated, a fall of temperature occurs simultaneously with the rise of the blood pressure. I shall not attempt to follow this memoir closely, but shall simply state the results of the experiments, the conclusions drawn, and the evident reasons there are for not allowing the justice of the deductions made.

The experimental facts which were reached are as follows:—

1st. Irritation of a sensitive nerve causes a rise in blood pressure but a fall in temperature.

2d. This fall occurs in the posterior part of the body even after the circulation has been cut off by forcible compression of the aorta.

3d. When, in animals which have been thrown into a high fever by the injection of putrid matters, a sensitive nerve is stimulated, a rise of blood pressure occurs as in the normal condition, but no *change of temperature.*

Dr. Heidenhain believes that when the blood pressure rises the blood current moves more rapidly, and that the fall of temperature is due to the surface blood being returned more quickly to the internal organs and thereby cooling them more rapidly than normal. It seems scarcely necessary to point out that if the blood is returned more rapidly to the interior, it of necessity remains upon the exterior for a shorter period, and is cooled less than normal. It makes no difference whether a quart of fluid cooled one-tenth of a degree, or a pint cooled two-tenths

of a degree, is returned in a given time so far as the temperature is concerned. More than this, in a very quick passage the blood probably loses less than a proportionate amount of caloric. Be these things as they may, the second and third experimental facts seem, to my mind, entirely sufficient to prove the incorrectness of the theory of Heidenhain—a theory whose utter improbability is shown by the circumstance that in some of his experiments, though the animals were wrapped in wool, yet the temperature fell steadily after galvanization of a nerve. Under such circumstances it seems incorrect to attribute the fall of temperature to increased evolution of heat from the body owing to changes in the circulation.

The work of Heidenhain has been reviewed and extended by Dr. F. Riegel (*Pflüger's Archiv*, Bd. iv. 1871).

In Dr. Riegel's experiments the fall of temperature did not always occur when the nerve was irritated, although the pressure always rose. Moreover, he noticed that the temperature usually remained at the minimum point for a long time after the withdrawal of the stimulus, although the blood pressure returned at once to the normal point.

The experiments and results of Heidenhain were, indeed, not entirely novel. The same ground appears to have been covered by Mantigazza. Where his memoir is published I am unable to say, but his results and conclusions, as quoted without reference, by Redard (*Archives Générales*, VI. Série, t. xix., p. 35), are as follows:—

1. Intense pain transmitted by spinal nerves and the skin causes a rapid fall of temperature, which in the rabbit amounts to from 0.68° C. to 2.48° C.; the mean being 1.27° C.

2. The temperature falls perceptibly during the first minute, and arrives at its maximum in ten to twelve minutes.

3. The lowered temperature may last for an hour and a half.

4. The fall is most marked when the pain does not give origin to muscular spasms.

5. The same phenomena occur in man.

6. The grave abatement of temperature produced by a pain lasting ten minutes would appear to be dependent upon an alteration of the chemical actions of the body, and not merely to an indirect influence exerted upon the vaso-motor nerves.

In order to clearly determine the truth concerning the influence of irritation upon a sensitive nerve I have myself performed the following experiments, which are, of course, repetitions of those of earlier observers. The records of these experiments are as follows:—

Experiment 1.

A young pup. Crural and axillary nerves exposed and thermometer placed in peritoneal cavity.

Minutes.	Temp.	
0	101¼°	Intense current to brachial; violent cries and struggles.
1½	101½	
2½	100¾	Current withdrawn.
4	100¾	
4½	100⅝	
5½	100½	
7	100⅜	
9	100⅜	Current reapplied.
10	100⅜	
11	100¼	Current broken.
13	100⅛	
17	100	
19	99⅞	
21	99¾	
22	99⅝	
24	99½	Current reapplied.
25	99½	
26	99½	
27	99⅜	Current broken.
29	99¼	
67	99	
97	100	
127	100	Dog killed.

Experiment 2.

A stout tom cat. The animal was closely wrapped up in flannels, many folds around the body and legs. Thermometer in peritoneal cavity.

Minutes.	Temp.	
0	101⅝°	
5	101½	Brachial nerves cut down upon and exposed since last note.
6		Intense current applied to nerves.
7	101⅝	Violent cries and struggles.
8	101½	Current interrupted.
20	101⅝	
25	101½	
26		Current applied.
26½	101⅞	Violent struggles and cries.
27	101½	
28	101⅝	Current broken.
30	101½	
33	101½	
35	101½	Cat killed.

Experiment 3.

An adult rabbit. Under chloroform, axillary nerves exposed, and a thermometer inserted through a small opening in the linea alba into peritoneum.

Minutes.	Temp.	
0	102¾°	
2	102¾	Current applied to nerve; violent struggles and cries.
3½	102¾	Temperature of room 83°. Current broken.
4½	102⅞	
5	102⅝	
7	102⅝	
8	102⅝	
10	102⅝	
13	102¼	
15	102⅛	
18	102	
19	101⅞	Current applied; struggles and cries as before.
20	102	Current broken.
21	102	

Minutes.	Temp.
22	101¾°
26	101⅝
29	101½
32	101⅜

Experiment 4.

An adult rabbit. Prepared as in previous experiments, except crural nerve used.

Minutes.	Temp.	
0	103¼°	
2	103¼	Current applied to nerve.
2½	103¾	Violent struggles and cries; current broken.
4	103½	
10	102¾	Rabbit quiet.
12	102½	
14	102¼	
15	102	
17	101½	
21½	101¼	Anæsthesia has been induced and the opposite crural nerve exposed, and used through rest of experiment.
22	101½	Current applied.
22½	101½	Current broken.
23½	101⅝	Rabbit squealing and struggling.
25	101⅝	Current applied, giving rise to violent struggles and cries.
26	101¾	Current broken.
27	101¼	
29	101½	
32	101⅛	
35	100⅞	
40	100¼	
47	99⅝	
49	99½	Rabbit killed.

An examination of these records will show that rarely did the temperature fall whilst the current was being applied, and that in several cases there was even a perceptible rise amounting from an eighth to a half of a degree. This rise I believe to be due to the rise of blood pressure and to the violent muscular exertion which the pain caused. It certainly occurred at the

period at which the blood pressure was increased. In many experiments upon the action of irritation of a sensitive nerve upon the arterial pressure, I have found that if the rise occurs it is immediate, and that in a very brief time after the cessation of the irritation the arterial pressure becomes normal. In all of my experiments, here reported, the fall of temperature did not fairly commence until after the period of disturbances of the circulation; in most cases it was very persistent and progressively increased for many minutes. In Experiment 4 the fall amounted to three degrees and three-quarters, and did not reach its maximum until twenty-three minutes after the last irritation of the sensitive nerve. Without occupying more time with the matter, it is evidently absurd to attribute the fall of temperature to disturbances of the circulation, since, at the time of the fall of temperature, the circulation is not profoundly affected.

The conclusion, from all the data which has been brought forward, seems logically inevitable that *the fall of temperature which results from the irritation of a sensitive nerve, is independent of the circulation, and is due to a direct influence of the nervous system upon the heat-producing function of the body.*

The clinician knows full well that in certain conditions of the system a fall of temperature occurs in man apparently independent of the circulation; and in animals the same thing can be experimentally shown to follow severe injuries. According to Horwath (*Centralblatt für die Med. Wissensch.* 1870, No. 35) and other observers, binding an animal upon a table is sufficient to provoke a very decided fall of temperature. When the animal is seriously wounded this fall is more pronounced; and during the late Franco-Prussian war P. Redard (*Archives Générales*, vi. série, t. xix.) determined that serious gunshot wounds are always in man followed by a very decided abatement of the bodily heat. Out of fifty-one observations made

upon as many individuals, the maximum temperature was 37° C., the minimum 34.2° C., and the general in the neighborhood of 36° C. Perfectly parallel phenomena have been found to occur after large burns; Redard reports some such cases.

Certainly these facts are enough to prove that the nervous system has the power of directly influencing calorification, but the complete elucidation of their signification must be postponed until later in my lecture.

In 1837 Sir Benj. Brodie (*Medico-Chirurg. Trans.*, 1837) observed the case of a man in whom, after a traumatic section of the spinal cord, the temperature rose in the course of a few hours to 111° F.

Acting upon this hint, Sir B. Brodie made experiments upon animals, and found that in them, under certain circumstances, the temperature rose very greatly after section of the cord.

Studies of the effect of division of the cord upon the temperature have, since the time of Brodie, been made by very many observers, notably by Bernard (*Compt. Rend.*, 1852, 1853), Schiff (*Untersuchungen zur Physiologie des Nervensystems*, Frankford, 1855), Chossat (*Meckel's Archiv*, 1852), Tscheschichin (*Reichert's Archiv*, 1866), Naunyn and Quincke (*Ibid.* 1869), Rosenthal (*Centralblatt*, April, 1869), Binz (*Virchow's Archiv*, 1870). It is hardly necessary to trace, step by step, the various views which have been held by these authors, and I shall only speak of the results obtained by the more recent observers—results which I have myself experimentally determined to be correct.

If the cord of a rabbit or other small mammal be cut in the lower cervical region, the temperature at once falls; and if the air of the apartment be decidedly below the warmth of the body this fall is permanent, and even increases, so that at death the animal heat is several degrees below normal. If, however, the animal be thoroughly wrapped in raw cotton or in wool, and if the external temperature be not too low, the fall just spoken of

is but temporary, and is succeeded by a rise of temperature which passes far beyond the normal point, so that the animal dies in a state of intense fever. In my own experiments, the cooling of the body after death has often taken place more slowly than normal, but I have never seen that post-mortem rise of temperature which has been noted by Naunyn and Quincke, and by other observers, but which appears to be only an occasional phenomena absent in the majority of cases. According to my own experience (and the testimony of other investigators is in accord with it), if the external temperature be much below that of the body of the animal, no amount of wrappings will suffice to bring about the febrile reaction; and if an animal in which the fever has already come on be exposed to external cold, the temperature falls. The time that elapses between the division of the cord and the rise of temperature varies from a few minutes to many hours, and is dependent upon the external conditions. If the animal be in a heated room, breathing heated air, the period of fall is a very short one. In none of my own trials, however, and in none of those reported by other observers, so far as I am aware, has the fall of temperature been altogether absent. In the experiments of Naunyn and Quincke, although the animal was put at once into a warm chest where the temperature was between 80° and 90° F., yet it was always several hours before the normal temperature was reached. The question here naturally arises, is the subsequent rise of temperature really due to the division of the cord, or is it due simply to the external heat to which the animal is exposed? An experiment completely crucial as to this point was performed by Naunyn and Quincke. They first placed the uninjured animal in the warm box, and when after some hours no rise of its bodily temperature had occurred, divided the cord and replaced the animal in the warm chest, when intense fever came on in a very short time. Again these observers opened the spinal canal so as to completely expose the cord without

cutting it, and placed the animal in the warm chest for the space of ten hours; at the end of this time the bodily heat had risen six-tenths of a degree only. The following day the cord was divided and the animal replaced in the warm chest: in the first twenty minutes the bodily temperature fell nearly one degree, but in the next hour and twenty minutes, at end of which time death occurred, rose three degrees.

It seems to me indisputably established that the secondary rise of temperature, after division of the cord, as well as the primary fall, are in some way produced by the operation.

The question here logically presents itself, Is the first fall of temperature due to a lessened production of animal heat or an abnormal throwing off of the bodily heat? Tscheschichin (*loc. cit.*, pp. 154, 177) found that the temperature in the interior of the body sank more rapidly than that of the external parts after section of the cord; thus, in one experiment, the mercury in two thermometers, which had their bulbs respectively in the intestines and underneath the skin of the animal, differed before the operation in height eight-tenths degree F., whilst some time after the operation they only differed one-tenth degree F. Dr. Tscheschichin seems to believe that this experiment proves a markedly increased throwing out of heat after the operation —an induction which does not seem to me logically correct.

Granting that after division of the cord the inner parts of the body always lose their heat faster than do the outer parts, I do not see that this proves anything more than that after the operation the intercommunication between the interior and exterior portions of the body is freer than normal. In fact, however, the phenomenon is not constant, as is proved by the following experiment, in which the external thermometer fell much faster than did the internal.

Experiment 5.

A stout female cat. The bulb of one thermometer introduced through an opening in the linea alba into the peritoneal cavity, that of the other thrust under the skin to a considerable distance.

Time.	Int. Temp.	Ext. Temp.	Remarks.
10.25	102¼°	101½°	
10.30			Cord cut in the extreme upper dorsal region.
10.35	102⅛	101⅛	
10.40	102⅛	101	
10.45	101⅞	100⅞	
10.49	101⅝	100⅝	
11.	101	100	
11.13	101⅛	99	
11.15	101⅛	98	Cat just dead.

It is in truth very difficult to determine exactly to what the primary fall of temperature after section of the spinal cord is due. The fact that after the secondary fever has been developed the temperature will fall, if the animal be exposed to a cool air, certainly shows that the body throws off heat more rapidly than normal. The dilatation of the vessels in the lungs, and on the surface, and the slowly moving blood current are certainly well calculated to produce an abnormal loss of animal heat. Since, however, Naunyn and Quincke have found that the fall occurs even when an animal is operated upon in an atmosphere at 86° F., it is probable that there is immediately following division of the cord *diminished heat* production as well as *increased heat evolution.* The influence of atropia upon the temperature, the effects of nerve sections, and various facts which it is not necessary here to reiterate, seem to me to indicate that vaso-motor paralysis, *i. e.*, lessened arterial pressure and dilatation of the vessels, always tends towards the production of these phenomena. Be this as it may, facts which it would be premature to bring forward at this time,

prove that the fall does not occur when the section is above the vaso-motor centres, and consequently that it is directly connected with the vaso-motor paralysis, and the consequent derangement of the circulation.

Tscheschichin states that in a single experiment, instead of cutting the cord he divided the medulla oblongata at its junction with the pons, and that the rise of temperature was in this case immediate, not preceded by a fall. Led by this I have performed the following experiments.

Experiment 6.

A large powerful mongrel dog.

Time.	Temp.	Remarks.
12.	102¼°	
12.20		Since last note have opened skull above the foramen magnum with a trephine; in doing this I have undoubtedly wounded a sinus, as the dog has lost fully ¾ pint of blood. I have just severed medulla.
12.25	103¼	
12.30	103¾	
12.40	104	Breathing regular.
12.50	104½	
1	104¾	
1.10	105¼	
1.30	105½	Thermometer put into abdominal cavity.
2		Cardiometer inserted into femoral artery. Art. pressure 75; upon galvanization of a sensitive nerve it fell to 50. The pneumogastric nerves were now cut; pressure after this was 45–55; on galvanization of a sensitive nerve the pressure rose to 65°. The breathing is now very much affected, and paralysis both of sensation and motion is seemingly complete.

Autopsy.—Medulla oblongata divided at its junction with the pons. Cerebellum wounded.

Experiment 7.

A terrier bitch of moderate size and strength. Opened skull.

Time.	Temp.	Remarks.
11.45		
11.47	103¼°	Cut the medulla. Breathing at once ceased almost entirely, so that dog was at one time thought to be dead, and artificial respiration, by compressing the body with the hand, was resorted to.
11.53		Dog beginning to breathe voluntarily, eyes not sensitive, nor is any portion of the body.
11.54	103½	Room 70°.
11.60	103¾	
12.15	103¾	Dog shows no signs of life but the slow, regular breathing.
12.30	103¾	
12.40	104	
12.45	104¼	Breathing noisy, irregular.
12.55	104¾	General muscular rigidity, with constant convulsions. Tremor has come on; both symptoms are much aggravated by any irritation of the surfaces. Legs stiffly extended, tail forcibly drawn down between them.
1.15	106	Room 70°.
2.10	107¾	Thermometer is now in abdominal cavity (has been in the rectum). The dog has been vomiting freely of matter.
2.15		Arterial pressure 150–160; galvanization of a nerve caused it to fall to 120–125.
2.20	108⅛	Cut the par vagum. Breathing at once almost suspended.
2.22		Respiration only at very long intervals. Blood in arteries venous. On connecting a cardiometer tube with the femoral, the mercury rose to the top of the tube (205) and flowed over in abundance.
2.25		Has been no breathing for some minutes. Heart has not ceased to beat.

Autopsy.—Knife has passed through the cerebellum, scraping the posterior surface of upper portion of medulla, and cutting it very obliquely at its junction with the pons.

In looking over the records of these experiments, it will be found that they are very conclusive, in regard to the rise of temperature, which follows division of the medulla high up. One of the most powerful means of lowering the temperature

at our command is venesection, and yet, although the dog in Experiment 6 was almost bled to death, the temperature rose from the time the medulla was divided. In Experiment 7 no bleeding of any moment occurred, and the elevation of temperature was therefore more marked than in the first trial. The rise commenced immediately after the division of the medulla, and amounted to almost five degrees, and was still increasing when the animal was killed. As the temperature of the surrounding air in both cases was not over seventy, the evidence is conclusive.

These experiments show very decidedly that fever is entirely independent of the circulation. In the small animal the arterial pressure was high, but in the large dog it was reduced to the lowest point compatible with life, and yet, in both instances, the temperature rose. Again in neither case was there vaso-motor paralysis, in the first experiment. After division of the par vagum, galvanization of a sensitive nerve was followed by a slight but distinct rise of the arterial pressure. The reason of this rise being so slight was probably the very small amount of blood in the vessels, so that contraction of the latter was not followed by the usual effects.

In the smaller dog, the evidence that the vaso-motor system was intact, was unimpeachable. At first galvanization of a sensitive nerve depressed the pressure, very decidedly, on account of the influence of the pain on the par vagum.

The mere height of the arterial pressure was, however, sufficient to prove the integrity of the vaso-motor system, for if the vessels had all been dilated, the mercury in the tube of the manometer would certainly not have stood over 100. Whenever asphyxia is produced in the normal animal, an enormous rise of arterial pressure results, owing in part to the vaso-motor spasm, which is caused by the excess of carbonic acid in the blood.

In Experiment 7 this rise of pressure followed the arrest of

respiration, and as there were no disturbing struggles, the universal paralysis being complete, must have been solely due to the action of the carbonic acid upon the heart and the vaso-motor centre.

The evidence that the section was practised above the vaso-motor centres, derived from the experiments themselves, is therefore conclusive, but it is well to call attention to the fact that it is already established that the vaso-motor centres are in the medulla oblongata, a fact which strangely enough has been overlooked by most, if not all, recent English writers, finding, for instance, no expression in the very elaborate and recent work of Dr. Flint.* A review of the evidence at this place would interrupt the thread or line of the present argument, and I shall therefore defer it for a few minutes.

In the following experiment the changes in the temperature which followed separation of the medulla from the pons, are apparently different from those previously obtained, but before discussing the point, let me offer you the record of the experiment itself.

Experiment 8.

A stout young dog above medium size.

Time.	Temp.	Remarks.
10.30	103¼°	
10.50		Brain freed with slight hemorrhage.
10.55	104⅛	
11.5	104⅛	
11.20	104⅜	
11.35	103⅛	Medulla cut. Absolute paralysis of motion and of sensation at once developed.
11.37	103	
12	103	

* Since I received the proof of this lecture a number of the Boston Medical and Surgical Journal has come to hand containing an article from Prof. Bowditch on the work done abroad concerning the vaso-moter centres.

Time.	Temp.	Remarks.
12.30	103°	Arterial pressure 120; on galvanizing nerve it fell at first but soon rose to 185, no movements except in muscles supplied by nerve were elicited.
1	101¾	
1.20	101	
1.25		Dog put in a box at temperature 90°.
1.45	101¾	Temperature of box 102°.
2.30	104¼	" " 104.
2.45	104½	" " 90.
3	105	" " 88.
3.30	106½	" " 94.
4	107	" " 84.
4.30	107	" " 82.
4.40	107	" " 76.
5.30	107	" " 72.
8	106	" " 64.
8.30	105	" " 64.
9	105	" " 64.

Next morning the dog was found dead.

Autopsy.—Medulla was nearly severed obliquely, where it merged into the pons.

In this experiment you see a fall of temperature preceded the rise, which was apparently due to the dog's being placed in a hot box. The cause of this fall I cannot completely establish; certainly, however, the fever, when developed, was independent of the external heat, for whilst the latter was steadily falling from 104° to 72°, the animal heat rose from 104° to 107°. In this experiment the arterial pressure rose from 120 to 185, when a sensitive nerve was galvanized, and the vaso-motor system was therefore intact. The fact that the medulla oblongata was not completely divided probably accounts for the want of as rapid a rise of temperature in this as in the previous experiments; if there be a "fever centre," the separation of it from the rest of the body was not complete but partial, and, therefore, it was not to be expected that the rise of animal heat would be as rapid or intense as in the previous experiments. What-

ever may have been the cause of the primary fall, the fact that the subsequent elevation of temperature was independent of the external heat shows that the primary fall was due to some temporary cause, and that the experiment really corroborated the others.

J. Bruck and A. Günter (*Pflüger's Archiv*, Bd. iii. p. 579) have also experimented upon the effect on the temperature of section of the medulla oblongata at the border of the pons. They used rabbits, and operated without opening the skull. Out of seven operations they found that once the temperature rose enormously after the section, once it rose very decidedly (1.1° C.) and in four cases fell continuously. The reason of the varying result seems to me to be found in the small size of the animal used. It must be remembered, that, if the vaso-motor centre be injured directly or indirectly in the operation, a fall of temperature must occur precisely as if the spine were cut lower down, and, as Bruck and Günter did not bring the animals into a warm place, such fall of temperature would necessarily be permanent. No effort was made by the observers to determine whether or not the vaso-motor nervous system was affected; and, as, in the rabbit (speaking from memory), the distance between the point assigned by Owsjannikow as the vaso-motor centre and the border of the pons cannot be more than a tenth of an inch, I think it is a fair inference that the vaso-motor centres were affected. No details of the experiments are given, but the reporter says, that the "bad success of the operation seemed to have its foundation in the too quick death of the animal." Taking all these circumstances into consideration, I do not think I can justly be accused of any desire for special pleading when I come to the conclusion, that, whilst the successful experiments of Bruck and Günter confirm those already detailed in this paper, the failure in other cases of the temperature to rise in no wise invalidates the conclusions to be

hereafter drawn from the experiments of Tscheschichin and myself.

Having now given you the experimental facts, it is proper to enter finally upon their discussion, and I shall take up first the subject of the position of the vaso-motor centres.

In a number of experiments,* which I have performed, galvanization of a nerve after section of a cord in the lower cervical region has failed to affect the circulation, or in other words, to influence the vaso-motor centres. To-day we have seen that after separation of the medulla from the pons nerve irritation does influence the circulation. Evidently then the vaso-motor centre is in the medulla. As already stated this conclusion is in accord with that of previous observers.

It is true that Prof. Cyon (*Mélanges Biologiques tirés du Bulletin de l'Academie Imperiale des Sciences de St. Petersbourg*, t. vii.) found that when the cerebral hemispheres are removed, leaving only the medulla oblongata and the cerebellum, irritation of a sensitive nerve is not followed by a rise of arterial pressure. The shock and the bleeding from such an operation are, however, so great that the results of the experiments are of little value; certainly the loss of blood and nervous disturbance might of themselves very conceivably utterly paralyze the vaso-motor centres, supposing them to be in the medulla oblongata. Therefore it cannot be allowed that the experiments of Prof. Cyon really contradict those about to be cited, which are in accord with those which I have myself performed.

Dr. C. Dittmar† (*Berichte über die Verhandlugen der Königl. Sachs. Gesellschaft der Wissenschaften zu Leipzig. Math.*

* See as an example Experiment XXVIII. in an "Investigation into the Action of Veratrum Viride upon the Circulation," *Phila. Medical Times*, vol. iv., also pamphlet reprint.

† Von Bezold may have ascertained the same experimental fact in his Untersuchungen über die Innervation des Herzens, Leipzig, 1863, but I have never seen his memoir.

Phys. Classe. 1870, Bd. xxii.) is the first experimenter to whose original paper I have had access, who proved that after separation of the medulla from the pons irritation of a sensitive nerve still causes a great increase of the arterial pressure. Thus in his experiment *a* (p. 33) on a rabbit, the medulla having been previously cut, the pressure rose 29 millimetres in 16 seconds, and in experiment *b*, both peduncles of the crus cerebri having been previously divided, the rise amounted to 30 millimetres.

I. Owsjannikow (*Berichte, etc.*, Bd. xxiii.) has experimented very elaborately, and has found that in cats and rabbits the vaso-motor centre is in a space whose upper boundary is one or two millimetres below the corpora quadrigemina, and whose lower boundary is four to five millimetres above the point of the calamus scriptorius, a space of about four millimetres.

Owsjannikow divided the nerve centres with very fine knives and employed the effect upon the arterial pressure of galvanizing a sensitive nerve as a test of the integrity of the vaso-motor centre. His experiments have every appearance of care and accuracy.

R. Heidenhain (*Pflüger's Archiv*, Bd. iv. p. 552, 1871) has also, in numerous experiments, determined that separation of the medulla from the pons in dogs does not prevent the rise of arterial pressure when a sensitive nerve is irritated.

The results obtained severally by Dittmar, Owsjannikow, Heidenhain, and myself are therefore in accord, and seem to prove that the chief vaso-motor centre is in the medulla oblongata, probably in the exact position indicated by Owsjannikow.

It does not follow, however, that this centre in the medulla is the sole generator of vaso-motor force. It is much more probable that it is simply of the nature of a governing or starting centre, and that the chief generators of vaso-motor force are placed in the cord. These cells, if they exist, may, under ordinary circumstances, not have the power of generating vaso-

motor impulses—but it may be their function to receive the impulse from above as their normal stimulant, which shall excite them to send an impulse, which is received, not by the vaso-motor muscle fibres, but by cells of the so-called sympathetic ganglia. The anatomy of the nervous system appears to me to point to this method of action, but a still stronger indication of it is afforded by the experiments of Schlesinger (*Wiener Med. Jahrb.* 1874), who found, in agreement with other observers, that when the cord is cut in the dog irritation of a sensitive nerve has no effect upon the arterial pressure, but who also discovered that if the animal were poisoned with strychnia, irritation of a sensitive nerve did induce rise of the arterial pressure.

If there be no fallacy underlying these experiments, it would appear a rational explanation of these results that strychnia so excites the nerve cells of the spinal cord as to cause them to respond to an impulse from below, which, under ordinary circumstances, is unable to affect them. Be these things, however, as they may, the cardinal fact seems absolutely proven by the concurrent experiments of five observers that the *chief or governing vaso-motor centre is in the medulla oblongata.*

From the facts and arguments which have been adduced, it is very certain that the rise of temperature which follows separation of the pons and the medulla is not due to any disturbances of circulation, the vaso-motor centres not being implicated by the operation. Moreover, as already stated, in my experiments the rise occurred in dogs in which the bloodvessels were almost empty, as well as when the arterial pressure was rather above normal.

Can the rise be due to changes in the respiration? Certainly not. In the first it is not conceivable that any departure from normal respiration should have the power to induce such rapid

increase of the chemical movements of the body. In the second place the temperature rose in my experiments during every imaginable condition of the respiratory movements. In one instance these were so far abolished that life had to be sustained for a time by alternately squeezing the chest and allowing it to dilate; at another time the breathing was natural; in another case it was hurried. Under all circumstances the bodily heat steadily increased.

The fever then which follows separation of the medulla from the pons is independent of the circulation and the respiration. I believe with Tscheschichin that it must be due to the removal of the influence of some repressive force, and that there must be *in the pons or above it a nerve centre whose function it is to inhibit or repress the chemical movements of the body*, i. e., *the production of animal heat.*

It certainly is an accepted deduction in physiology that section of a nerve induces abolition of function, and that the symptoms which follow such section are paralytic in their nature. Applying this obvious axiom or rule to this case, it is plain that the rise of temperature is owing to a paralysis, and that this paralysis must be of something which keeps down temperature. It would seem hardly necessary to discuss this point in detail, had it not been asserted (*Pflüger's Archiv*, Bd. iii. p. 581), that the rise of temperature which follows section of the medulla at the border of the pons is due to an irritation of the medulla. Heidenhain states that he was led to this conclusion by noting that the rabbits, upon which Bruck and Günter experimented, showed symptoms of irritation of the medulla in that their breathing was exceedingly rapid. Acting upon this, he suggested that the effect of puncture should be tried, and accordingly Bruck and Günter instituted such experiments. The temperature rose more uniformly than in the previous experiments in which section was practised. It was found that two or more punctures were more effectual than a single one,

and that the effect was still more pronounced, if two of the lance-shaped needles were plunged in at once, and allowed to remain (*in das Gehirn senkt und dieselben liegen lässt*).

In commenting on this, I want to call attention to the fact that in some of my experiments the temperature rose at a time when, so far from there being irritation of the medulla, this organ was so depressed by the shock that the animal had to be kept alive by artificial respiration. It is evident that in the experiment of Bruck and Günter, the nerve centres were actually wounded, and I see no reason for disbelieving the possibility of this wound affecting the conducting power of the nerve fibres, especially as it is plain that the deeper and larger the wound, *i. e.*, the more numerous the needles, the greater was the rise in temperature. The paralytic effect of plunging a needle into a nerve centre certainly reaches, at least for a time, beyond the obvious wound, and the effect of leaving a needle in must be to increase this paralysis by pressure. The reason the rise was obtained more frequently after the "stick" than after the section of the medulla, seems to me to depend upon the circumstance that in the former case, the vaso-motor centres were not so apt to be involved as in the latter.

It must be borne in mind that the rise in temperature which follows this section of the medulla oblongata is obviously of the same character as that which follows section of the cord lower down. Now it is simply inconceivable, that irritation of a nerve centre should give rise to the same symptom as section of the nerve, which runs from the centre. If irritation of a cerebral nerve centre be followed by a rise of temperature, section of the spinal cord ought to be followed by a fall of temperature. As the facts are, it seems to me as logical to attribute the loss of voluntary movement which follows section of the medulla oblongata to irritation, as to attribute the rise of temperature to irritation.

Whether we do or do not grant the existence of the inhibi-

tory chemical centre, the experiments which have here been detailed, undoubtedly prove that the nerve centres influence directly the chemical activities of the body. The increase of reflex activities, which follows section of the medulla, is universally believed to be due to the separation of the cord from an inhibitory motor centre, and why should it seem so strange that there should be an inhibitory heat centre? the evidence in the two cases is completely parallel.

Although I am now advancing beyond actual demonstration, it is very possible that this inhibitory heat centre does not act directly upon the tissues, but that through the whole length of the cord there are cells whose function it is to preside immediately over chemical activities, and that upon them the inhibitory centre exercises a controlling influence. Without going into any further discussion of this point, let me say that the clinical facts of the so-called infantile palsy seem to point in this direction.

The nervous physiologist very often has called to his aid pathology and the records of clinical medicine, and confirmation of asserted physiological facts and conclusions from such sources is always considered to be entitled to much weight. I have never myself had a case of severe hemorrhage into the pons, but others have, and the records are in accord with the theory of an inhibitory chemical centre. I shall not cite individual cases, but, as more authoritative, the general results put forth by Dr. Bastian in his recent lectures on the differential diagnosis of the clot in apoplexy. He says (*London Lancet*, Oct. 31, 1874), after severe hemorrhage into the pons, when the life is prolonged for a few hours, the temperature of both sides of the body steadily rises, till, at the time of death, it may have attained to 109° or 110° F., a condition of profoundest coma continuing throughout. Why should the fever of a clot in the pons be more a result of irritation than is the palsy which follows a clot in the corpus striatum?

It is a matter of the gravest scientific interest to decide exactly where this inhibitory heat centre is situated. I have not yet had time to undertake a research upon this point, but hope soon to do so. The known facts of clinical medicine seem, however, to indicate that in the optic thalami, or their neighborhood, are the ganglia which control chemical changes. Thus, lesions of the optic thalami, according to Bastian, produce a rise of temperature in the paralyzed limb which amounts to from one and a half to two degrees, and "persists for a long time, it may be for many weeks." There is, of course, no reason for believing that, in this case, the increase of temperature is due to a vaso-motor paralysis, because the vaso-motor centre is far below the part affected. More than this, those who would attribute all these changes in temperature to vaso-motor paralysis are here between Scylla and Charybdis. The limb of the unfortunate child is *permanently icy cold*, because in infantile palsy there is *vaso-motor paralysis*, and the limb of the unfortunate man is *permanently burning hot*, because in apoplexy of the optic thalamus there is *vaso-motor palsy*. I believe it to be a matter of grave doubt whether pure vaso-motor paralysis is ever followed by a permanent rise of temperature; the local fever which occurs after section of the so-called sympathetic nerves being very probably due to these nerves being composed of two sets of nerve fibres, the vaso-motor and those which proceed from the chemical centres to the periphery.

If what has already been asserted in this lecture be true, namely, that the fall of temperature which is produced by galvanization of a sensitive nerve is independent of the circulation, and that there is a controlling chemical centre, it is *à priori* exceedingly probable that the fall of temperature is induced by an excitement of this centre, consequent upon irritation of the afferent nerve, or, in other words, that the fall of animal heat

which follows galvanization of a sensory nerve is the result of a reflex excitement of the inhibitory chemical nerves.

If the experimental results be found to agree with this reasoning, the asserted correctness of the premises is greatly corroborated. The following experiments were instituted to test the matter.

Experiment 9.

A stout young dog. Medulla nearly cut through at its junction with the pons.

Time.	Temp.	Remark.
1	101¾°	Galvanization of a sensitive nerve with an intense current for half a minute had no perceptible effect on temperature. Dog watched many minutes.

Experiment 10.

A stout terrier. Medulla oblongata very nearly severed from pons.

Time.	Temp.	
2.10	107¾°	A very intense current passed for one minute through the axillary nerves had no influence on the temperature. Animal watched many minutes.

Experiment 11.

A powerful dog. Medulla oblongata separated from pons.

Time.	Temp.	Remarks.
1.30	105¼°	Galvanization of a large sensitive nerve with a very strong Faradaic current for one and a half minutes had no perceptible effect on the temperature. Animal watched many minutes.

The results of these experiments certainly are in accord with and corroborate the *à priori* reasons. As a contrast to them, may be profitably studied some which I have made on animals suffering with pyæmic fever. The temperature was not very high, but it was the highest that I have seen developed in a

number of experiments. The results obtained are at variance with those of some previous observers, but of this more anon.

Experiment 12.

A moderate sized male cat.

Time.	Temp.	Remarks.
10 A. M.	101¼°F.	Injected one fluidrachm of pus into the flank.
4.20	106½	
4.40		Abdomen opened in linea alba and thermometer inserted; temperature remainder of experiment taken from it.
4.45	106	
4.53		In cutting down for femoral nerve an artery wounded, and about ℥ss of blood was lost.
4.55	103	
4.59	103	Current of moderate strength applied to nerve for about half a minute.
4.60	102½	
5.5	102	
5.15		Current applied for a brief space.
5.20	101	
5.24	100¾	A very strong current applied for three-quarters of a minute.
5.25	100¾	
5.26	100¼	
5.29	100½	
5.30		Very strong current applied to nerve for about a minute.
5.31	100	
5.33	100	
5.34	99¾	Cat killed.

Experiment 13.

A moderate sized male cat.

Date.	Time.	Temp.	Remarks.
12.15	10 A. M.	102°	A half fluidrachm of pus injected into cellular tissue.
12.16	10.		A fluidrachm injected.
	4.30 P. M.	105½	
12.17	11.35	105	Opened linea alba and transferred thermometer to peritoneal cavity.

Time.	Temp.	Remarks.
11.40	104¼°	
11.45	104	Strong current applied to femoral nerve.
11.47	104	Current broken.
11.50	104	
11.55	103½	
12	103	
12.5	102¾	
12.7	102½	Current reapplied.
12.8	102¾	Current broken.
12.12	102¾	
12.16	102¾	
12.20	102	
12.45		Thermometer retransferred to the rectum.
12.47	102	Cat killed.

It is proper to state at this place that both of the last two series of my experiments have yielded seemingly different results from similar experiments made by R. Heidenhain. (*Pflüger's Archiv*, Bd. iii. p. 510.) That observer states that in a number of instances he has found that irritation of a sensitive nerve, after separation of the pons from the medulla, is followed by a fall of temperature. On examining the record of the single experiment, I find, however, that the fall took place solely during the application of the galvanism to the nerve, and amounted at such times only from .05 to .1 of a degree (C.). Indeed, throughout the experiment, the temperature really rose, so that at the end it was decidedly higher during the periods of nerve excitement than it was before the nerve had been irritated at all; and at the close, when the nerve was not stimulated, the bodily heat was .2 C. higher than at first. This very slight fall of temperature, occurring during the period of stimulation, is something very different from the profound fall which occurs some time after the stimulation, and of which I have been speaking all through the evening. This slight, evanescent alteration of temperature is very probably due to alterations in the respiration or circula-

tion. I cannot allow, therefore, that the experiments of Heidenhain contradict, much less disprove, what I have previously asserted.

His experiments on animals suffering from pyæmic fever have also differed from mine, in that he did not obtain any fall of temperature. The explanation of this is probably to be found in the fact that he employed very feeble currents. It may be that it is more difficult to depress the temperature of a feverish than of a normal animal. Upon this point I shall speak more fully a little later in my lecture.

A knowledge of the existence of an inhibitory chemical centre throws a flood of light upon many hitherto inexplicable puzzles in clinical medicine.

Thus it has long been known that high bodily temperature may coexist with any condition of the circulation; and so long as it was believed that the rapidity of the production of animal heat was directly dependent upon the activity of the blood-current, the coexistence of high fever and of lessened arterial action was a very strange phenomenon.

Another class of cases completely cleared up by discovery of inhibitory chemical nerves, is the so-called cerebral rheumatism, an instance of which was detailed earlier in the evening. The fever so universally present in acute rheumatism is probably, in most cases, a merely "irritative fever," essentially different, in the method of its production, from the high temperature of "cerebral rheumatism." It is caused by the articular inflammation of the joints, precisely as it is in cases of simple, non-specific, acute inflammation of joints, and in a manner which shall be explained directly.

The *materies morbi* of rheumatism, whatever its nature may be, is seemingly whimsical in its choice of attack. One day it is the wrist, the next the ankle, the next, perhaps, the pericardium or the pleura, which receives the blow. We cannot tell why any individual part is attacked or is spared in any indi-

vidual case. Now, with seemingly as little reason, sometimes the *materies morbi* expends its force upon the inhibitory chemical centre, and overwhelms it, paralyzes it; a general and rapid rise of temperature results. The pain and sensibility in the joints disappear, not because the disease has left the articulations and attacked the brain, but because sensibility is everywhere destroyed by the heat, as is shown by the fact that in the case here reported, just so soon as the heat was abstracted and the general sensibility restored, the pain and tenderness reappeared in the joints.

The mode of origin of an ordinary case of *irritative fever* is rendered very evident by a knowledge of the inhibitory chemical centre. A boil, a pneumonic lung, or any local focus of irritation, sends an impulse up an afferent nerve to the inhibitory chemical centre. Perhaps, at first, this inhibitory centre is excited to action, and the animal heat is reduced, and a chill is caused. If the irritation be more persisting, the inhibitory centre is weakened or paralyzed, and an elevation of temperature results.

The complete analogue of this exists in the case of the ordinary motor nervous system. One irritation to a nerve results in the production of a distant spasm; another in the production of a distant paralysis; in other words, just as a peripheral irritation may produce reflex functional excitement or reflex functional depression of a motor centre, so may it cause a reflex functional excitement, or a reflex functional depression of this heat-centre; the difference being, that whilst in the former instance there is a spasm or a paralysis, in the latter there is a chill or a fever.

It is well known that the slightest splinter will sometimes cause the most intense motor disturbance; hence it is not strange that the irritation caused by the passage of a catheter should produce an intense disturbance of the inhibitory heat-centre, and consequently of the production of animal heat.

Because fever in some cases is produced by a paralysis of the inhibitory nerve-centre, it by no means follows that it is always so; indeed, it is most probable that there are other methods of its causation. The inhibitory centre must have an antagonistic force which tends towards the formation of chemical changes. Whether this activity does or does not reside solely in the tissues themselves, is not at present positively ascertained. It may be that there is a nerve-centre whose function it is to increase chemical movements. Be this as it may, reasoning from what is known of inhibitory nervous action, it would seem most probable that there is an accelerator as well as a depressor chemical nerve. If there be such, it must also play a *rôle* in the production of fever. We must be careful, however, not to theorize beyond our facts, and we have no positive knowledge of the existence of any chemical nerves except those which control the chemical movements.

Again, it is certain that there are substances which affect these chemical movements either by acting directly upon the tissues or upon the blood. Thus I have ascertained by recent experiments that the nitrite of amyl will lower the temperature, *i. e.*, lower the chemical activities of the body after the latter has been separated from the upper nerve-centre by division of the cord; and Binz and others have proven that alcohol and certain other drugs have the same power.

It has not hitherto been proven that fever ever occurs as the result of a direct action of any agency upon the tissues, but it may be accepted as a necessity, that if some materials exist which are capable of directly lessening the chemical movements of the tissues, there must be other agencies which directly stimulate these same tissue actions.

No disease is more directly traceable to entrance of a poison into the blood than is pyæmia or septicæmia, and none is more constantly attended with fever, or more easily produced in the lower animals.

I have, therefore, endeavored to determine whether, in pyæmia, the chemical nerve-centre is affected, but my experiments have not been pushed far enough to be absolutely conclusive. Since, in pyæmic fever in the rabbit, the temperature—at least in my experience—never goes above 106° F., it is evident that there cannot be a complete paralysis of the inhibitory chemical centre, for if such paralysis existed, the fever would be much more intense. The results in my experiments, already detailed, coincide with this view of the case, and thereby corroborate the truth of our deductions. They are, however, at variance with those of Heidenhain. I found that the temperature in pyæmic fever was profoundly affected by peripheral irritations, whilst he found that it was not influenced.

Without doubt, the experiments were in each case accurately performed and correctly reported; the diversity, in all probability, depends upon his having employed feeble irritations—such as he had found would influence the temperature in the normal animal, whilst I applied very intense faradaic currents directly to large nerve-trunks. It is an almost necessary inference that, in septic fever, the inhibitory or chemical centre has lost, in part, its susceptibility, but is still capable of responding to very powerful stimulation; or, in other words, that the inhibitory chemical centre is, in pyæmia, in a condition of paresis, but not of paralysis.

That the centre is not paralyzed is shown by the comparatively low temperature attained in pyæmia. After section of the medulla, the temperature in the dog rose rapidly to 108°, and was still rising when the animal was killed; whilst in the rabbit, whose natural temperature is higher than that of the dog in pyæmia, I have never seen the thermometer mark higher than 106°.

In bringing this long lecture to a close, there are many thoughts in regard to pathological and especially therapeutical

subjects which I might venture to bring before you, had I not trespassed so much on your patience: as it is, I must take leave of you with the expression of the hope that some of you, having been shown, at least, glimpses of truth new to you, will think and experiment, so as to aid in determining which, of the many things that I have said to you this evening in all honesty, are true and which are false; to the end that out of the labors of many minds the whole truth may at last be evolved.

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INSTITUTED TO ENCOURAGE THE DISCOVERY OF NEW TRUTHS FOR THE ADVANCEMENT OF MEDICINE.

LECTURE V.

ON THE SURGICAL COMPLICATIONS AND SEQUELS OF THE CONTINUED FEVERS.

BY

WILLIAM W. KEEN, M.D.,

OF PHILADELPHIA.

DELIVERED FEBRUARY 17, 1876.

WASHINGTON:

SMITHSONIAN INSTITUTION.

MARCH, 1877.

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SMITHSONIAN INSTITUTION,

Washington, April, 1877.

LECTURE V.

Delivered February 17, 1876.

ON THE SURGICAL COMPLICATIONS AND SEQUELS OF THE CONTINUED FEVERS.

By William W. Keen, M.D.,
of Philadelphia.

The province of the physician and that of the surgeon are, in general, sufficiently sharply defined and differentiated, yet they have many points of contact. While some diseases belong exclusively to the province of the one, and some to that of the other, other diseases may fall with equal propriety under the care of either practitioner. Still another class of cases, however, beginning in the domain of Medicine, may terminate in that of Surgery, and we may lack their complete history from the very fact of this division of their care and interest.

Among the diseases classed as strictly medical, none deserve the appellation more definitely than the continued fevers, and especially Typhus and Typhoid. Yet I hope to show that fevers are not infrequently the cause of the gravest and least expected surgical troubles, mention of which is generally omitted, even in our best text-books on medicine, still more rarely noticed in works on surgery, and where noticed, it is only with the greatest brevity.[1]

[1] "The cases of constitutional disease discovered by fever might serve to illustrate a large part of the convalescence of fever, a subject of the highest interest and full of promise of utility to one who will carefully study it. The sequelæ of scarlet fever are commonly enumerated; those of typhoid fever, especially those seen in surgical practice, are scarcely less numerous, but seem less known." Just as this is going to press, I find the above remarks by Sir James Paget, in his extremely interesting Clinical Lectures and Essays, London, 1875, p. 378.

My attention having been called to the matter, by several personal cases, I have been led to study the subject, and I desire now to record briefly the results of an extensive search of medical and surgical works as well as the records of individual cases, in the hope that by grouping together many isolated instances, I may be able to contribute somewhat to our exact knowledge of the surgical complications and sequels of the continued fevers, both as to their causes, the means of their early recognition, the best methods of treatment, and if possible that still higher object, the averting of dangers which otherwise may prove disastrous to health, and too often to life itself.

The exanthematous fevers are better known as causes of surgical troubles, and I have therefore carefully excluded them as well as a few cases following intermittent fevers.

I shall omit entirely all well-known results of a semi-surgical character, such as hemorrhage from the nose and bowels, peritonitis, with or without perforation, erysipelas, a not infrequent complication about the face, or when bedsores exist, and cases of thrombosis of the veins, which causes a variety of phlegmasia deserving a more extended study than it has yet received.[1] Bedsores and the ordinary abscesses are too well known to demand other than passing allusions. Much as I regret to do so, I must also omit, from want of time, the consideration of the forms of disease which especially interest the ophthalmic surgeon. Ulceration and perforation of the cornea are briefly, but I may say completely, treated by Trousseau.[2] Post-febrile ophthalmia or amaurosis, a peculiar retino-choroiditis which follows only relapsing fever, first described by Hewson in 1814, and Wallace in 1827, has been so carefully

[1] See Bibliography "Phlegmasia," where I have grouped the most important references.

[2] Clinique Méd. de l'Hôtel-Dieu, 2d ed., p. 271, and Gaz. des Hôp., 1856, 170.

studied of late by ophthalmic writers, as to leave but little further to be said, and I must refer those who desire to study it to the appended Bibliography.

I shall include only such cases as diseases of the joints, œdema glottidis and necrosis of the cartilages of the larynx, which often require tracheotomy, necrosis of the bones, gangrene of the extremities and other parts, fistulæ of various kinds, and the like.

The records of many cases are extremely imperfect, some in fact are mere allusions, and I have been compelled therefore, in tabulating them, to come as near the truth as may be. The frequency of many symptoms is therefore greater than appears from my tables. Especially is it difficult to discriminate between typhus and typhoid fevers as causes. The earlier cases, before the essential abdominal lesion of typhoid was recognized, are all classed as typhus, and even to-day many cases, especially in German books and journals, are briefly called "typhus," meaning "typhus abdominalis," *i. e.*, typhoid. If any error exist, therefore, it will consist in assigning too many cases to typhus proper, for I did not feel permitted to go back of the record unless plainly authorized to do so by the history or the post-mortem.

I. DISEASES OF THE JOINTS.

Two forms of disease of the joints are found, first a polyarticular inflammation, which may assume either a rheumatic or a pyemic form; and, secondly, a monarticular inflammation.

The rheumatic variety I shall at once dismiss. The pyemic form of inflammation is not very common, for Murchison, with his immense experience in the London Fever Hospital, has seen but one case. It follows the usual course of pyemia, both in its symptoms and its usually fatal issue. Huss and others have referred it to suppurative phlebitis from bedsores,

parotitis, etc., but it has been observed in cases in which no such complication existed. Pyemic arthritis, like the gangrene from pressure, parotitis, etc., is most apt to occur in severe cases, in which the blood change is at its maximum, and the "typhous crasis," as Stokes has expressed it, possibly becomes converted into pyemia.

It is, however, the monarticular form, which will most interest us. It affects the larger joints, such as the elbow and shoulder, the ankle and knee, but above all the hip. The pain is usually slight. The swelling is generally readily observed in all joints except the hip and the shoulder, where it is probably obscured by the muscular masses about these joints combined with the tardy increase in the swelling. Usually it arises spontaneously, but occasionally from periostitis or necrosis extending into the joint. It rarely produces suppurative or fistulous openings. The result is, therefore, generally a gradual return to usefulness, although in 3 cases I have found anchylosis. Of 43 cases, the lower extremities were affected in 39, the upper in only 7, 3 of the cases involving a joint in both, for occasionally two large joints are affected at once. Arthritis, therefore, resembles other surgical febrile affections, such as gangrene, necrosis, etc., in affecting mainly the lower extremities, as do also thrombosis and the ordinary œdema. The frequency of these joint troubles is not great. According to Güterbock, in a series of years in the Charité (Berlin) and the Hamburg Hospitals, not a case occurred, and in the Vienna General Hospital from 1868 to 1871 only 2 cases among 3130. Murchison does not even name this complication at all, nor do any other of our text-books, either on surgery or practice, except a few lines by Volkmann, in Pitha and Billroth's Handbuch. Güterbock and Hellwig are the only authors who have treated them at all fully. Yet that they are of great importance, and demand our utmost attention, will be

seen at once when we consider that of the 43 cases named, spontaneous dislocations occurred twenty-seven times in the hip, twice in the shoulder, and once in the knee.

These dislocations require more particular notice. From their similarity to febrile arthritis in the same and other joints their pathology seems clear, although—in singular contrast to the strangely fatal laryngeal stenosis I shall soon consider—not a single death has occurred, and therefore no post-mortem verification has been possible. They belong to the class of "Distension-luxations." That the cause is not the specific poison is evident, since similar results follow other and dissimilar diseases, such as locomotor ataxia, the exanthematous fevers, hemiplegia, sciatica, and rheumatism, as pointed out by Stanley in 1841.[1]

Usually in the period of convalescence, following, therefore, the prolonged exhaustion, there arises a subacute synovitis with a gradual serous distension of the capsular ligament, which, having reached a certain point, may slowly subside, and no further evil follow. In 3 cases, however, this burst externally, producing sinuses, but in none of them was the discharge purulent. The main result is a slow, generally unperceived, elongation of the ligaments, *e. g.* of the hip, with perhaps also a swelling of the so-called gland at the bottom of the acetabulum. This distension will spend its force mainly posteriorly, since the inverted Y ligament reënforces the capsular ligament in front. Given this condition, the slightest force will dislocate the head of the femur upwards and backwards on the dorsum of the ilium. In one case a fall to the floor produced it, in three others turning over in bed, and twice the lifting of the patient in the arms from one bed to another.

[1] On dislocation espec. of the hip-joint. Med. Chir. Trans. xxiv. 123. See also Malgaigne, Fract. and Disloc., Paris, 1855, ii. pp. 218–226, 882–887.

But in all the other 21 cases no cause was assignable, and it is, therefore, likely that it was mere muscular contraction which becomes, at the time when these occur, more vigorous as health gradually returns. Seitz has recorded one of the most remarkable cases in which, from extensive bedsores, the abdominal decubitus was maintained for nearly a month, and he supposes that this was the immediate cause of the dislocation. But as in no other case is this posture noted, it cannot be regarded as correct. Indeed, if posture have any influence, as the dislocation is generally if not always iliac, the dorsal decubitus would be the most favorable for its production. In one of the shoulder cases a subcoracoid luxation was caused by the patient's assuming the erect posture. Gravity had here probably some influence, together with the muscular exertion. The dislocation of the knee also was posterior.

A remarkable case corroborative of the non-specific character of the lesion and the probable influence of gravity, I have lately seen in the service of Dr. Wm. G. Porter, at St. Mary's Hospital. The child was about two years of age, greatly exhausted from mal-nutrition, and for about six weeks was kept alive by inunctions of sweet oil, no other nourishment whatever being given. It had large abscesses in different parts of the body, and at present has necrosis of the left humerus. Early in the period of returning strength and before the necrosis appeared, spontaneous luxation of the left humerus into the axilla occurred. It was easily reduced by manipulation, and has not since recurred.

Typhoid was noted as the preceding fever in 15 and typhus in 7 of the hip cases. Sex has a marked predisposing influence in this, as we shall find in other diseases, for of 23 cases 15 were males and only 8 females. The age at which they occur is still more noteworthy: 15 were under 15 years, 6 from 15 to 20, 1 was 30, and 1 was 61 years old; that is, 21 out of 23 were under 20 years old. The analogy to coxalgia, it will be ob-

served, is, therefore, very marked. Usually they were single dislocations, 6 being on the right side and 6 on the left; but in 3 cases dislocation of *both* hips occurred.

From the apathetic condition of the patient in some cases, the subacute nature of the lesion, the absence or slightness of the pain, the masking of the swelling by even the wasted muscles about the joint, and, above all, the want of knowledge of cause or probability of the dislocation, and therefore the neglect to examine the parts thoroughly, it is not surprising that this threatening evil should have been often unobserved. In 9, that is, one-third of the cases, it is distinctly stated that the *actual dislocation* was the first fact observed, and in most of the others this is probably true.

The date at which the dislocation was, at least, observed, was generally after the third week. One case occurred in the first week, 4 in the second, and 9 in the fourth week or later, that is, during distinct convalescence. Pain was experienced in 13 cases. Usually, it was not severe, nor was it always strictly localized in the hip, but sometimes extended to the entire leg. In only 2 cases was it referred to the knee, thus differing markedly from the well-known coxalgic knee-pain. Swelling is only distinctly stated in 6 cases, though probably present here as in other joints, but either unobserved or often unrecorded in the brief statements I have often found. The variety of the dislocation is not named in 10, but as in all the other 17 it was iliac, there is good reason to believe that this is probably always the case. Shortening is recorded in 11 cases, and where the amount is named was generally one and a-half to two inches. In 5 cases the rotation was inward, in 2 outward, and in 2 of the 3 double dislocations both legs were rotated in the same direction, that is, right or left, thus producing a peculiar deformity when compared with the apparently reversely rotated body. The head of the bone in 4 cases was freely movable in all directions. This mobility of the head and the singular diver-

sity in the rotation of the limb, are additional reasons in favor of the distension theory of its pathology. Flexion and adduction, Dr. Sayre has shown to be the position of the limb which produces the greatest capacity of the capsular ligament of the hip, and we ought to see this position, therefore, as a rule in distension-luxations. But I only find two cases in which there were adduction and flexion. In the other cases the position is not stated, except in one in which the limb was extended.

As to treatment, reduction is generally easy when the luxation is discovered early, but if the discovery or treatment be tardy it is always difficult and often impossible. In 11 cases reduction was successfully accomplished seven times by manipulation, twice by extension, and twice by both means. In 8 cases reduction was not effected, and in 8 the result is not stated. Only two cases of recurrence of the luxation are noted, a rather surprising fact in view of the relaxation of the distended tissues; but its possibility should be borne in mind and guarded against by the same prophylactic means that I will name directly. No snap is heard on reduction, all tension and suction-power of the joint being lost. Even after reduction the leg may be somewhat longer than the other, owing, probably, to the distension, to the swollen articular gland, and possibly in old cases to interstitial changes in the neck of the femur.

The question of prophylaxis is perhaps the most important of all, and the indications are clear. First, a careful watching and repeated examination of the hip-joint, especially in children, to detect any effusion. If any exist, the position of the leg becomes of the greatest possible importance. As adduction and internal rotation favor spontaneous dislocation, the leg should be kept in abduction and external rotation. The first indication is easily fulfilled by two lateral sandbags which may be bridged across in front at intervals by a bandage, to keep the leg at rest between them, or by lateral splints. The foot may be kept in external rotation by bandages or adhesive plaster fastened to

the external sandbag or splint. If the effusion threaten to produce dislocation, it may well be a question whether aspiration would not afford a safe and efficient means of prophylaxis.

II. DISEASES OF THE BONES.

A popular name for necrosis is "fever sore," but, as Nathan Smith long since pointed out, more because it caused fever than because it was caused by fever. That it does follow fever and is caused by it is certainly true, but it is not a very frequent though a very important sequel. I have collected thus far 50 cases of necrosis proper following continued fevers, but among these are 19 reported by one single author—Whately—the histories of which are exceedingly brief and unsatisfactory. He states, indeed, that he has *seen* 30 cases—an incredible statement, I think, in view of the fact that from all other sources, after an extended search, I can only gather 31 more. "Fever" with him, however, may include a very wide range. One element of unavoidable uncertainty in the history is seen at once. The osseus disease usually falls under the eye of the surgeon at a period distinctly subsequent to the fever, and, knowing nothing personally as to the previous medical history, he must depend upon the statement of the patient—often a most unreliable means of information.

Two causes for such necroses and other forms of disease, such as periostitis and caries, are to be found: first, thrombosis, or in some cases possibly embolism; and secondly, absolute inanition or want of nutrition.

The role assigned of late to the marrow together with the spleen as a source of the red corpuscles, would seem to be confirmed by the similarity of the changes observed by Ponfick[1]

[1] Ueber die sympathischen Krankh. des Knochenmarks bei inneren Krankh. Virchow's Archiv, lvi 534. Cf. also Anatom. Studien über den Feb. Recurrens, Virch. Archiv, 1874, lx. 153.

and others in the spleen and marrow in typhoid. In later convalescence, or shortly after recovery, we find in the marrow many mother-cells holding numerous blood cells, enormous masses of large cells filled with pigment in complete analogy with the observed metamorphoses of extravasated blood. These are especially seen at the sides of the cavernous veins, and must retard still further a circulation already impaired in force by a weakened heart. Nutrition is here at its lowest ebb, and as the vessels, from the nature of the tissue in which they run, cannot enlarge in proportion to the needs of the circulation and are themselves more or less involved in fatty degeneration, we may readily understand how the lack of nutrition alone, as in Dr. Porter's case previously cited, would cause gangrene of the bone even more readily than in the soft parts in which we know it to be so common.

That the bones should suffer from vascular clots, and especially the bones of the lower extremities, where such clots are most frequent, as we shall see, in gangrene, is probable both from analogy and experiment, and from one case in which it has been actually observed in typhoid.[1] There is no reason to suppose, when thrombosis is so frequent elsewhere, that the bones would escape. Virchow has shown that in relapsing fever we frequently have infarctus in the marrow. Volkmann[2] gives an excellent case and illustration of necrosis of the tibia and talus from embolism, the result of endocarditis. We need a few similarly exact observations in cases of necrosis from fever, in which death or amputation affords the desired opportunity to settle the question positively; but generally the examination, if made at all, is of the most superficial character.

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[1] See Meusel's Case, p. 15.

[2] Pitha & Billroth's Handbuch, Bd. ii., Abth. ii., Lief. i., p. 287. and Langenbeck's Archiv, 1864. v. 330. See also Mollière, Lyon Méd., 1870. pp. 12, 149, 256; 1871, p. 38.

[artmann[1] has shown, experimentally, that obliteration of the utritious artery causes necrosis of the inner lamella of bone—strong point it must be admitted in favor of Whately's theory iat after fever the result is not ordinary necrosis but a central ecrosis of the inner lamella which he limits to the tibia. locking of the veins is evidently not so dangerous in bones blocking of the arteries, since the collateral venous circution especially towards the extremities is abundant, while the llateral arterial circulation is scanty.

I have found 69 cases of diseases of bone following continued vers. Of these, 50 were cases of necrosis, 12 of caries, 3 of riostitis, and 4 of indeterminate or doubtful nature. Three ses of necrosis following typhoid and smallpox I have exuded. Typhoid, as usual, claims the larger share, for of 41 ses 37 followed typhoid and only 4 followed typhus. Males so are in the preponderance, counting 38, to 14 females. Age is not a very marked influence, as 19 were under 20 years, 11 om 20 to 30, 11 from 30 to 40, and 5 over 40. Scarcely any gion of the body escapes; 22 cases involved the head, 7 the unk, 6 the upper extremities, and 42 the lower, a result rikingly in accord with the cases of arthritis and gangrene. the head I have found 12 cases of necrosis of the alveoli and ws. Among these perhaps the most remarkable, although mewhat doubtful, case is the one I saw in a soldier at rederick, Maryland, in 1862, in which, after typhoid fever llowed by pneumonia, the entire right upper jaw with a part the palate bone and the intermaxillary bone necrosed and parated. The case is remarkable, both from its being a riking example of the limitation of disease by the embryonic velopment,[2] and also from the extraordinary series of ope-

[1] Nekrose herbeigeführt durch Verstopfung des Foram. nutrit. Virch. rchiv, viii. 114.

[2] H. Allen, Studies in the Facial Region, Phila., 1875, has specially lled attention to this point.

rations subsequently done by Dr. Gurdon Buck, of New York,[1] to remedy the frightful deformity which had been produced. It is but proper to say that the man was reported to have taken about ʒij of various mercurials during his preceding illness; but from the facts I have stated, as well as his scanty history, I think it tolerably clear that the fever and not the mercury caused the necrosis. Mercury or syphilis complicated two or three of the other cases I have tabulated, but they were not, apparently at least, the cause of the trouble.

Mr. Salter[2] has pointed out the relation of alveolar necrosis to the eruptive fevers, especially scarlet fever, and believes that as these structures are dermal in character they partake with the skin in the eruptive mischief. While this relation remains undisturbed, yet I do not think the necrosis exists as a specific sequel of these fevers only. Of the 12 cases cited, 7 occurred as follows: one at 16, one at 12, and five at 10 years of age and under, that is, during the period of dental development and growth. That such cases are more frequent in the exanthemata is natural when we consider the relative infrequency of the continued fevers under 15 years of age.

The period at which these diseases of the bones arise varies greatly. Of 47 cases 10 arose in the first two weeks, 27 in from three to six weeks, and the remaining 10 followed often months after the fever. The earlier cases include probably, most of those from clots, and the later ones those arising from enfeebled nutrition, whose effects especially in structures which vary so slowly as the bones may readily extend over such long periods.

Especially does this enfeebled nutrition show itself in case where too early strain is put upon the parts and justifies the remark of Aitken that "no man can be considered fit for work

[1] See Bibliog.

[2] Holmes's Syst. Surgery, 1st ed., vol. iv. p. 50.

or for general military service for three or four months after an attack of severe typhoid fever." The following case illustrates the wide-spread mischief that may follow in the osseous system when put to the test by labor, months and even years after such a fever.

H. W., a remarkably stout, healthy lad of 16, was attacked Dec. 17, 1871, with typhoid. He was delirious for four weeks, was in bed four months, and first got out of doors in May, 1872. Bedsores had formed, but they were kept in check by incessant care. In the fall of 1872, not yet being strong, he went to work at riveting in an iron works, which required him to stand and use a ten pound hammer, the main strain being naturally on the right arm and leg. His right arm soon began to swell, and finally four fistulous sinuses formed. After the removal or discharge of several pieces of bone, this arm recovered in about a year. Returning then to the same work, his health being still impaired, his right thigh began to trouble him, broke out, and healed several times, discharging several pieces of bone. He came under my care in July, 1875. He had then a scar and five open sinuses in the thigh, all leading in the direction of the bone, and in one, just above the knee, a fragment of dead bone an inch long was found. This sinus and a second just below the patella, an offshoot from it, threatened to invade the knee-joint. Meanwhile, in the fall of 1874, not having done any work on account of his right leg, the left thigh broke out, and a sinus in the direction of the bone was established, but no dead bone was ever actually found here. In January, 1875, an abscess also appeared in the left arm, and after the discharge of some bone finally healed. I enlarged all the existing sinuses in the right thigh, removed the dead bone, and after treating the case carefully for four months all the sinuses healed. A new one, however, has appeared of late in the right thigh, but no dead

bone is, as yet, to be found.[1] His health markedly improved early in 1875, and since my operation he has grown to be exceedingly robust and hearty again. His right knee, which was stiff from the sinuses among the muscles of the thigh and near the knee-joint, is now as mobile as ever, and he is at work with ease. The abscesses in the two arms were at or near the deltoid insertion, in the right leg, the earliest was just below the insertion of the glutæus maximus, and in the left near the lesser trochanter, all points at which muscular strain in standing and hammering would come.

The symptoms need scarcely be alluded to, for they are those of ordinary necrosis, although Whately endeavors to differentiate them. In 13 cases of necrosis of the long bones other than Whately's, in which the description enables me to judge, I find only 3 distinct cases of central necrosis,[2] and these differ in no especial manner from other cases. That it is limited to the tibia, as asserted by Whately, is disproved by the fact that of seventy-seven bones affected, the tibia was attacked only thirty times, including in these the 19 reported by Whately.

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[1] In Feb. 1876, it healed, broke out again in July, and did not heal until December, after a counter opening had been made. Since then he has been well (March, 1877).

[2] The third of these cases I have had in private practice while the MS. is passing through the press. A. W., a rather feeble girl, æt. 11, was taken sick with typhoid May 10, 1876. After three to four weeks in bed she began to walk, but soon had to stop on account of weakness, and especially of pain in her left tibia. After three weeks' poulticing it broke in two places, and has discharged ever since. I saw her first in December, 1876, and found two small sinuses which extended into the bone, but no dead bone had ever been discharged. After building up her general health by tonics and cod-liver oil, on February 17, 1877, I operated on the bone, using Esmarch's apparatus in the manner I have suggested (*Phila. Med. Times*, Sept. 26, 1874), and after making an opening into the medullary canal with the chisel and gouge, I removed a small, loose spicula of necrosed bone (central necrosis) seven-eighths of an inch long. At this date, March 5, 1877, she is doing well.

The results of necrosis vary with the situation. The ordinary sinuses etc., I need not mention further. If in the sacrum, coccyx, or innominate bone, perineal fistulæ may result, of which I have found 3 cases. If in the mastoid or petrous bone, the brain and its membranes may be involved. The following *resumé* of the case of Meusel is of especial interest, as it throws so much light on the cause of the necrosis, the clot in the meningea magna, and is as extraordinary for the audacity of the treatment as for the success of the result.

Fig. 1.

Necrosis of Frontal (A), Parietal (B), and greater wing of Sphenoid (C) bones, following typhoid. In B and C the middle meningeal artery and its branches are seen. Natural size. Meusel, Deutsche Klinik, 1872, p. 266.

A student in the gymnasium, æt. 19, at Easter in 1868, had an attack of typhoid fever, went home when convalescent, but did not improve, and suffered much from headache. In August, four months after the fever, he had a large fluctuating abscess over the right parietal region, which was opened, and

dead bone found. By Oct. 1, the bone was loose, and on the 5th, an incision of three inches was made and a loose piece of the frontal was removed. The rest of the dead bone was firm, but the incision was extended backwards till the whole of the necrosed portion was exposed. It was then carefully chiselled loose and separated at the squamous suture. At the anterior inferior angle the necrosis was there found to extend on the internal surface only; with a fine chisel this internal lamella, a piece $1\frac{1}{2} \times 2$ c. m., was chiselled away from the great wing of the sphenoid. In it was a groove in which lay the anterior branch of the middle meningeal, filled with the detritus of a clot. The whole piece was $5\frac{1}{2} \times 9$ c. m. The dura mater was but slightly injected. The scalp and the dura mater united and in fourteen days he was nearly well, having recommenced his Latin and Greek with the greatest zest eight days after the operation. Two small pieces of loose bone afterwards caused threatening symptoms, but improvement followed immediately upon their discharge. In March he was entirely well, and went to Göttingen to study philology at the University. Epileptiform attacks followed during 1869, but then disappeared, and had not reappeared in 1872.

As to treatment, the ordinary operation for the removal of necrosed bone is to be done at the proper time, especial care being taken to remove any small central sequestrum. Occasionally the disease of the bone may cause extensive disease in the soft parts, or may extend to a neighboring joint, though either complication is rare. Amputation then becomes imperative. Only four such amputations occurred in the cases reported; two died, one recovered, and one was under treatment. About the face not infrequently extensive plastic operations are required.

III. DISEASES OF THE LARYNX.

The laryngeal complications are noted very briefly by several medical writers, such as Murchison, Flint, Liebermeister, Griesinger, etc., but it is mainly the laryngeal ulcers themselves which are treated of, their surgical results being scarcely mentioned. Gross and Gray barely allude to typhoid as a cause of œdema glottidis. Even systematic writers on the larynx scarcely notice them. Gibb and Rühle refer to two or three cases. Cohen simply names fever. Türck gives, however, eight valuable cases. I have collected 169 cases, of which at least 67 (and probably many more) certainly involved the cartilages themselves.

The troubles which may demand surgical interference are all allied, and are the result of a low grade of inflammation. The entire respiratory mucous membrane (as is shown by the frequency of bronchitis) is in a more or less catarrhal condition like that of the bowels, and occasionally other mucous membranes such as those of the gall-bladder, urinary bladder, and vagina. It is not, therefore, a matter of surprise, that serious trouble should arise in the larynx, especially as slight variations in its mechanical condition gravely embarrass so vital a function as respiration.

Pathologically the troubles may be grouped into three varieties, viz., 1. Œdematous laryngitis. 2. Ulcerative laryngitis. 3. Laryngeal perichondritis. Practically it is often exceedingly difficult to separate these various forms even at the post-mortem, so far do they overlap each other. Œdema may exist alone or it may result from either of the others; ulceration may march steadily deeper until the cartilages are involved; or the perichondritis may produce an abscess which will burst, and so form an ulcer. How much more difficult, nay often impossible, then is it, to diagnosticate precisely the form of the disease, when, happily, the patient recovers. Dyspnœa,

suffocation—this is the one great overshadowing clinical fact which groups them all together whatever the form of the disease, or of the preceding fever.

That simple asthenic œdema may arise just as œdema of the lower extremities is not only probable, but has been positively observed by Emmet and Buck. It has also been observed after diarrhœa, bronchitis, and other diseases. But this is a much rarer form than those cases in which it is secondary to erysipelas, or parotitis, or laryngeal ulcers, often of small extent. I cannot help suspecting also very strongly that more careful future examinations will show in not a few cases that local venous thrombosis has been the cause of the œdema.

The other two forms especially merge into each other. Rokitansky believes that the ulcers are a peculiar form of typhus, the so-called laryngo-typhus. Others, and I certainly agree with them, do not believe that they are specific in their origin, but belong "to the common cortège of septic diseases" and other allied disorders in which the low grade of inflammation readily runs into ulceration, and even into local gangrene. How much influence local stasis of the blood or even clots in the vessels may have, has not been carefully investigated, but I believe them to be no unimportant factors.

These ulcers are sometimes very common. Thus Griesinger met with them in 31 out of 118 autopsies, Hoffmann in 28 out of 250, and Louis believes that "if found on the body of one who has died of an acute disease, they will establish with nearly perfect certainty and without going any further, that the affection is typhoid fever." At other times they are so rare that in nearly 13,000 typhus cases at the London Fever Hospital, Murchison records but 21 of laryngitis, of whom 8 died; and in typhoid he has only seen 3 or 4 cases.

Where the cartilages are involved, Moritz-Haller, and others, believe that it follows the ulceration which detroys the mucous membrane and eats down to the cartilages, while Sestier has

gone so far as to declare that the ulcers which accompany perichondritis are not primary but in all cases secondary. Both I believe are right, but both go too far. So far as the history and post-mortem appearances would enable me to judge, I have found in 20 cases that the perichondritis preceded the ulcers and caused them, while in 10 cases the ulceration had caused the perichondritis. In cases of perichondritis in which death takes place early, there is no opening in the mucous membrane, but a submucous abscess will be found surrounding the necrosed cartilage. If death takes place at a later date a small opening will exist, through which the probe will enter into a much larger cavity. In other cases the surface mischief will be by far the most widely spread, the ulcers being roughly conical, involving not only the mucous membrane, but eating deeply down to the cartilages. Similar necrosis of the nasal cartilages also sometimes results from fever.

Those cases in which there is considerable cough, or the patient in his delirium has cried aloud, or sung much, or those in which, after distinct convalescence, there has been exposure to wet and cold, are predisposed to laryngeal troubles. They are exceedingly rare in children. In 94 cases in which the age is recorded, I have found but 6 under 15 years of age, 60 from 15 to 25, and 28 above 25 years. Sex is potent here as in the other diseases considered. Lisfranc thought them more common in women than in men, but of 110 cases, I find 86 in men and only 24 in women, or $3\frac{1}{2}$ to 1.

The cause of the stenosis is various. It may be, 1st, from œdema; 2d, the swelling produced by the abscess about the cartilage; 3d, the sides of the glottis may fall together if the cricoid be destroyed and in pieces; 4th, the permanent approximation of one, or more rarely of both vocal chords from destruction of the fixed points of origin of the muscles; 5th, as in two remarkable cases given by Hoffmann,[1] shreds of

[1] Op. cit., pp. 253 and 255.

sloughing tissue on which blood coagulates, may form a sort of polyp which suffocates the patient even in spite of tracheotomy.

Fig. 2.

Laryngeal Ulcer after Typhoid. Polypoid Hæmatoma hanging from it and causing death by suffocation after Tracheotomy. *a*, upper end of incision. The smaller cut, *b*, is a section of the Hæmatoma showing its two layers; the centre consisting of shreds of dead tissue hanging from the ulcer, and the outer layer of clotted blood. Hoffmann, Verând der Organ. beim Abdom. Typhus, Taf. v. Fig. 16.

The seat of the stenosis is threefold. Most frequently (25 cases) it is supra-glottic, that is, in the epiglottis and ary-epiglottidean folds, especially where the œdema is primary, or where it is caused by ulceration, or arytenoid perichondritis. The next most frequent site is subglottic, *i. e.*, about the cricoid (22 cases). This is always, I believe, the result of cricoid necrosis or perichondritis. Russell reports 2 cases following typhus, which he regards as examples of Gibb's "subglottic œdema." That the second was a case of ulceration and perichondritis, is quite certain from the history, and most likely the other was too. The larynx was normal down to the chords, tracheotomy rescued both when suffocation was imminent, and both were followed by stricture, requiring the permanent use of the canula. The least frequent site of the œdema is in the

glottis proper, since œdema of the vocal chords is named but nine times.

The date of the development is generally here too, in the later fever, or more frequently in distinct convalescence. Of 102 cases only 4 occurred in the first week, 13 in the second, 19 in the third, and 66 from four weeks to two months. They follow typhoid far more frequently than typhus, in the proportion of 106 to 49, some of the latter being probably really typhoid, while 14 arose from other forms of continued fever.

The position of the ulcers in the larynx is noteworthy. Wherever they may be, from the arytenoid to the cricoid, they are almost invariably posterior. Rheiner[1] has shown that the posterior wall of the larynx is the richest in vessels, and that ossification begins here often as early as the twentieth year. Here, then, we should expect the most frequent inflammations and thrombosis of the smaller vessels; and when we add to this the effect of gravity, from the continuous dorsal position, and the mechanical effects of frequent use of the voice, and, therefore, repeated movement of the arytenoid cartilages in some delirious cases, we have a sufficient explanation of the phenomenon. Emphysema of the neck and trunk is an occasional result of such ulcers where they penetrate the mucous membrane. This was first pointed out by Wilks. Other cases are reported by Steiner and Loeschner. All three were children.

Necrosis of the cartilages is the most important form to recognize, in consequence of its excessive gravity; for, of 56 cases in which the result is given, 54 died. One recovered after tracheotomy,[2] and one without it.[3] We can scarcely agree with Türck, therefore, that the prognosis is "doubtful." The seat of the necrosis in the majority of the cases is the cricoid

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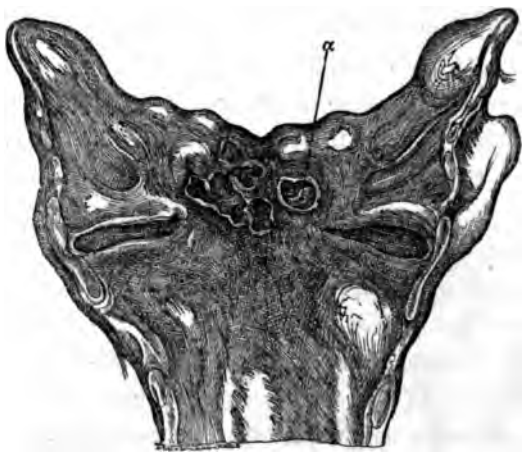
[1] Breitäge zur Histologie des Kehlkopfs; Würzburg, 1852.

[2] Türck, p. 223.

[3] Hérard, l'Union Méd., July 14, 1859, quoted by Trousseau, Clin. Med., Syd. Soc. Trans., 2d ed., vol. ii. p. 407.

(38 times), next the arytenoids (19 times), while the other cartilages were affected but 5 times. In 10 of the cases, the cricoid and arytenoid were involved simultaneously.

Fig. 3.



Perichondritis laryngea following typhoid. Ulcers on the posterior wall of the larynx. At *a*, a piece of the necrosed left arytenoid cartilage shows. Türck, Krankh. des Kehlkopfes, p. 216, fig 78.

It is to be specially observed that probably a number of the cases which recovered were also really cases of perichondritis, of which the *positive* evidence was wanting. Thus, in 8 cases in which recovery followed tracheotomy, the patients spat up gangrenous or purulent matter, besides having other symptoms of cricoid necrosis; but as the expectoration of any pieces of necrosed cartilage was not positively observed, I have not included them in my statistics of necrosis. Were they included, the result, and especially the result after tracheotomy, would be far more favorable.

Whatever the origin of the necrosis, the cartilage is soon destroyed, either by molecular disintegration or is even broken in pieces. Sometimes it undergoes ossification; at others,

caseous degeneration. The articulations of the cartilages are also often destroyed, especially those of the cricoid, with the arytenoid or with the thyroid; and thus again voice is impaired. The function of the muscles, especially those which open the glottis, is impaired or destroyed, from direct implication of the muscles or from destruction of their cartilaginous attachments,

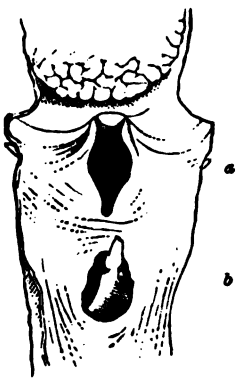
Fig. 4.

Perichondritis laryngea following typhoid; abscess opened from œsophagus and seen from behind. *a*, *b*, necrosed and partly destroyed cricoid cartilage; between *a* and *b* the dark spot indicates the point where the abscess communicated with the trachea; it did not communicate with the œsophagus; *c*, crico-aryten. post. muscle. Türck, Krankh. des Kehlkopfes, p. 218, fig. 80.

or of the articulation; and thus the vocal chord of that side is immobilized, and altered voice and stenosis of the larynx follow. If an abscess form about the cricoid, it may not only burst into

the larynx but also into the pharynx, and a fistulous opening be established by which food may enter the larynx and trachea.

Fig. 5.



Perichondritis after Typhoid. Opposite *a* the œdematous ary-epiglottidean folds are seen. Below the vocal chords the larynx was narrowed by thickening of the connective tissue. Opposite *b* a movable piece of the destroyed and broken cricoid, which has perforated the œsophagus, is seen.—Rühle, Kehlkopf-Krankh., p. 178 & Pl. I., Fig. 2.

This, Dittrich thinks, is the most frequent point of opening; but I have only found it recorded in six instances, though such an abscess would have burst here in several other cases had life been prolonged. An additional complication may follow, also in the pharynx. The cricoid presses upon its posterior wall, both from swelling and from gravity, and this pressure, together with the foul purulent discharge, may cause an ulcer; or, as in a case recorded by Armstrong, a retro-pharyngeal abscess. Hoffmann[1] records another case of retro-pharyngeal abscess extending from the base of the skull to the diaphragm, laying bare the left subclavian artery. This, however, did not result from a laryngeal necrosis.

The earliest symptom of grave laryngeal disease is usually

[1] Op. cit., p. 388.

an altered voice. I have only found it distinctly stated as unaltered in three cases. Generally it is hoarse, sometimes higher, but usually lower in tone, probably from involvement of the crico-thyroid muscle. Sometimes complete aphonia sets in. Stokes[1] has supposed the hoarseness and deafness both to be due to the muscular degeneration, to which I shall allude hereafter; but it is more likely to be due here, at least, to œdema and inflammatory swelling, and, at a later period, to the mechanical destruction of the parts involved.

Soon after this hoarseness is observed, the dyspnœa sets in. This is paroxysmal, the attacks being generally at night. With each succeeding attack the severity increases, until life is destroyed; but even the very first attack may be unexpected, sudden, and fatal. Especially does this seem to be the case in typhus, and in supra-glottic œdema. Emmet and others have recorded a number of cases, in which, even without the least previous dyspnœa, on simply assuming the erect posture sudden suffocation came on, and life was only saved by instantaneous laryngotomy. The delay of "a few minutes" caused death in one case which otherwise would probably have recovered. Most frequently the dyspnœa is inspiratory, but I cannot find that this is of any decided diagnostic value.

The expectoration, curiously enough, aids us but little; in but few cases did it attract sufficient attention even to be named; but if it be purulent or gangrenous, it should arouse instant attention. Pain and tenderness, though often masked by the mental condition, are generally present, especially in perichondritis. As we have the resisting vertebral column behind the cricoid, I would strongly urge that both by direct and lateral pressure on the cricoid, and also by sliding it sidewise, we may often elicit pain which might otherwise be overlooked. Lateral pressure will also often produce dyspnœa, or

[1] On Fevers, Phila., 1876, p. 105.

aggravate it, especially if the cricoid be broken, or nearly broken in two. Dysphagia is noted as present twenty-one times and absent five times, and is especially present in cricoid and arytenoid necrosis. Rarely is there any external swelling to attract attention, for I have only found it noted thrice. Nor can the pharynx be relied upon to warn us of impending evil, for in 16 cases in which its condition was observed, it was normal in 10 and inflamed in only 6.

Most of the cases occurred before the days of the laryngoscope, so that I have only thirteen such examinations from which to draw any inferences, seven of which are recorded by Türck. In several instances there was nothing whatever abnormal down to the vocal chords; and the swelling of a cricoid abscess on the posterior wall is not visible. But the usual facts observed, were the fixation of at least one chord in the middle line, diminished mobility of the other, swelling of the ary-epiglottidean folds, stenosis of the larynx increased by lateral pressure, a depression of the mucous membrane in case of destruction of the arytenoid, and sometimes the opening of an abscess, usually near the processus vocalis. A few such positive facts with any additional positive symptoms should lead to an equally positive treatment.

And first the mortality is so great that the treatment is of the greatest possible moment. Of 146 cases of all kinds of stenosis in which the result is recorded, 101 died and 45 recovered, a mortality of over 69 per cent., but not a surprising result when we add the laryngeal disease to the exhausting fever. But when we separate the cases operated upon from those in which no operation is named, or was certainly not done, the importance of the treatment becomes even more appreciable. Of the 76 cases not operated on, in which the result is stated (and, be it observed, I have included in these the cases of mere scarification), 17 recovered and 59 died, a mortality of over 77 per cent. Of the 70 cases operated

on by some form of bronchotomy, 28 recovered and 42 died, a mortality of 60 per cent. And when it is remembered that in two of the fatal cases the larynx was not opened, though tracheotomy was apparently performed; and a third, in full recovery thirteen days after the operation, on the removal of the canula, was suddenly suffocated before it could be replaced; and in another, the canula got displaced in front of the trachea; that in many, if not in most of the cases, the operation was deferred till the last possible—that is the most unfavorable—moment; that many cases that might have been rescued were plainly *allowed* to die from exhaustion, or even from positive suffocation, by timid doctors, in which the result could not have been worse had an operation been performed, the question of operation would seem to be decided.

Yet I would not be understood as an advocate of rash and indiscriminate bronchotomy. Its dangers are great, and not to be undervalued. The question, however, is often between a dangerous operation and a more dangerous refusal. In case the attack is sudden and severe, so that life is in immediate and positive peril, no question can arise as to the propriety of an operation, wanting which, the patient perishes on the spot, nor any question that crico-thyroid laryngotomy is the easiest, safest, speediest operation. Delay here means death. Of 14 such operations, 8, or 57 per cent., recovered, and in such cases as are recorded by Emmet and Anderson, no words can add force to the fact, that after life was apparently extinct, laryngotomy and artificial respiration saved 5, the delay of a few minutes resulting fatally in the 6th case. A cut throat here is not over-dangerous, and the operation is so simple, and may be so imperative that every medical man, as well as surgeon, should stand ready to do it in case of impending death.

But it is in the less suddenly threatening cases that judgments may differ, and here I hope to be able to assist in forming a decision. The moment, in a case of typhus or typhoid,

that hoarseness, aphonia, dyspnœa, or dysphagia sets in, the larynx should be examined with the utmost vigilance both from without and by the laryngoscope. If œdema or ulceration be found, but the danger be not as yet severe, leeches, iodine, ice in rubber bags, or possibly a blister may be used externally, and astringents, nitrate of silver, etc., internally, together with proper general treatment. In 1819, Lisfranc proposed scarification and operated succesfully in six non-febrile cases, and in 1847, Buck revived the practice and devised an appropriate knife. The laryngoscope has made such treatment far more certain, and it should first be tried in suitable cases.

But, should these means fail? Then an *early* rather than a late tracheotomy, for otherwise we add to the previous enfeebling disease a prolonged battle for breath, with its ensuing pulmonary congestion and general exhaustion. Especially is this to be commended in the peculiarly fatal necrosis of the cartilages. Of 67 positive cases, 41 of which occurred in men and only 10 in women, all died but 2, one with and one without an operation; 22 were operated on, 45 were not. But as before mentioned, 2 died from displacement of the canula, at least one of which had practically recovered; 8 cases of recovery after tracheotomy are not included, since, though the presumption in favor of necrosis is very strong, yet the evidence is not positive. Were only these 8 included, and it is certainly fair to do so, it would stand 30 operations and 10 recoveries, a mortality of 67 per cent., and 45 not operated and 1 recovery, a mortality of nearly 98 per cent.

Once, then, that perichondritis is established, death is almost unavoidable if no operation be done. If bronchotomy be resorted to, the chances are greatly improved. Indeed, it is probable that if the dangers which surround such cases be recognized in the future and a prompt attempt at relief be made, far more favorable results will be obtained. I would, therefore, join with Sestier in urging an immediate operation the moment

that perichondritis is recognized and serious dyspnœa sets in, without waiting for repeated attacks to exhaust the slight store of strength, all of which will be needed during the subsequent separation of the necrosed cartilage, and the sloughing of the soft parts.

In other cases than those of perichondritis such haste will not be necessary: yet if the respiratory murmur be progressively enfeebled; if pulmonary congestion set in; if the paroxysms of dyspnœa increase in frequency and severity, especially if orthopnœa arise; if the local disease be extensive or rapidly increasing; or if the general feebleness be so great that a little further interference with the respiration will destroy life; then no time is to be lost. Doubt is certain death.

What operation shall be performed? If an instant operation be needful, cricothyroid laryngotomy is the best; if time allow, tracheotomy. But if the cricoid be involved, with Beck, I would advise laryngo-tracheotomy, *i. e.*, tracheotomy prolonged through the cricoid; since it would allow readier access to the seat of the disease for the discharge of pus, the removal of any loose piece of cartilage, and the treatment of any ulcers or granulations. These I regard as greater advantages than the danger of possible collapse of the lateral halves of the cricoid, which is prevented in part by the canula, and would not impede the respiration even if it occurred. Unless necessary, it is best not to operate during a paroxysm; since the mechanical difficulties of the operation are then largely increased, and the danger of entrance of air into the veins is apparently much greater. In 36 operations for laryngeal angina, two such accidents occurred; whereas, in 245 non-anginose cases, not a single similar accident arose (Sestier).

Hemorrhage, as would be supposed from the condition of the blood, is sometimes a serious complication, both at the operation and subsequently, and caused death in three cases.

A curious and unexpected complication arose in two cases

reported by Mohr[1] and Laennec,[2] the knowledge of which should guard us against a similar error. The operation having been apparently achieved and the canula inserted, respiration was not bettered nor did air pass through the canula. In a few minutes the patients died suffocated. At the post-mortem it was found that the canula had entered, not the larynx, but the abscess around the cricoid. In Mohr's case the vertebræ were felt through the incision, and a probe and the canula moved freely about in what was naturally believed to be the trachea but proved to be the abscess cavity.[3]

In three cases of œdema the canula was removed in six, eight, and nine days respectively. But after such serious loss of substance and extensive organic mischief as are involved in the cases of perichondritis, it is not a matter of wonder that the stenosis of the larynx is generally permanent. In 17 cases of probable or actual perichondritis, the canula was removed in one case after seven months, but in the other 16 cases, when last seen, the patients were still wearing them. Once, after seven years' use, a piece of the canula wore away, broke off, and fell into the trachea, whence it was successfully removed by Albers. Busch, Russell, and others have attempted to dilate the stricture, both from above and below, but without any success.[4]

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[1] Casper's Wochenschr., 1842, p. 192. Also in Dittrich, Prag. Vierteljahr., 1850, iii. p. 129.

[2] Bayle, Nouveau Journ., t. iv. p. 37.

[3] Green, Brit. Med. Journ., Dec. 17, 1870, p. 649, and Marsh, St. Barth. Hosp. Reports, iii. 368, report cases (not following fevers, however) in which the tube was inserted in the cellular tissue in front of the trachea.

[4] By the courtesy of Drs. Otis and Woodward, of the Army Medical Museum, the casts and specimens of Dr. Buck's case, p. 18, and of several cases of laryngeal stenosis, were shown.

IV. GANGRENE.

The cases of gangrene may be divided into two classes: A, those from pressure; and B, cases of spontaneous gangrene.

A. Those from *pressure*, or the ordinary *bedsores*, are not peculiar to the continued fevers, as is well known, but arise from any prolonged debilitating disease or accident. They are more common, therefore, in typhoid fever than in typhus, on account of its greater duration. But they not infrequently follow typhus, if it be prolonged by any complication. The only points in addition to the greater danger of pyæmia, to which I desire to call attention, are as follows:—

First, as pointed out by Nélaton,[1] Blandin,[2] and others, if they penetrate deeply they may destroy the ligaments uniting the sacrum and coccyx, and so penetrate into the spinal canal and set up meningitis, etc. This complication, I believe, arises much more frequently from bed-sores, whatever their cause, than is generally known. Recently I have had two instances: one arising from a bedsore following confinement, the specimen which I show you, and which I owe to the courtesy of Dr. Schell, my colleague at St. Mary's Hospital; and the other in a boy who injured his knee and died some weeks after from tetanus induced probably by this complication. I have found 6 cases of tetanus recorded; 4 following typhoid and 2 typhus. Four of them were females. In one it was clearly caused by a bedsore.[3] Four of them died, but the two women who recovered had had menstrual irregularities, which probably caused the alleged tetanus.[4]

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[1] Path. Chir., Paris, 1844. i. 256–7.

[2] Anat. Top., 2me ed. p. 437. See also Charcot, Mal. du Syst. Nerveux, 2me ed., i. 89–90.

[3] Maclagan's.

[4] De Lauriere (see Bibl.) reports also a case of hydrophobia, which became ataxic, following a quotidian fever. He had been bitten by a

Secondly, large bedsores, as in two cases reported by Chenu in the Crimea,[1] may greatly hinder free motion of the legs and trunk by the extensive cicatrices.

Thirdly, the treatment first proposed, I believe, by Brown-Séquard, of ice poultices for fifteen minutes, followed by hot flaxseed poultices for two to three hours, often stimulates the most indolent bedsores to heal with surprising rapidity. During and since the civil war I have repeatedly and successfully tried this plan of treatment.

Sometimes gangrene results from the slighest pressure, as in a case reported by Stokes,[2] in which there were thirty such spots; two or three new ones appearing every morning, at points of such trifling pressure, as where the mammæ leaned on the arm, or one leg on another, and a black hand appearing where the face had rested on the hand. Strange to say, the woman recovered after a month's abdominal decubitus. For such cases Liebermeister recommends an almost continuous and complete bath, the body resting and reclining on sponges.

B. But the cases of so-called *spontaneous gangrene*, though less frequent, are of far greater interest from a surgical point of view. They vary greatly in frequency. Thus, neither Flint nor Trousseau ever saw a case; Nélaton does not name fever as a cause of gangrene; Murchison, though he has seen a few, does not cite a single English post-mortem. Yet Estlander reports 34 cases, and I have collected in all 113 cases. The frequency varies in proportion to the severity of the case and of the epidemic, and especially to the preceding conditions as to bodily nourishment, mental depression, and general mode of life. In former wars especially, from the time of Thucydides to that of Napoleon, fierce epidemics, especially of typhus, have

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healthy dog three months before. R. Reid (Pathol. and Treat. of Fever, Trans. Queen's Coll. Phys. Ireland, iii. 41) alludes to the similarity of hydrophobia and the excitable stage of fever.

[1] Rapport, pp. 520, 524. [2] On Fever, Phila., 1876, p. 210.

decimated armies and often displayed a most frightful tendency to gangrene. But of late, whether in civil or military practice, if we may judge from the scanty gleanings I have been able to obtain from the journals and the experience in our own civil war as well as in the late European wars, the condition of the sick has been so ameliorated that gangrene is happily a rare complication.

The history of the extraordinary series of cases reported by Estlander, well illustrates these predisposing causes. In Finland, a financial crisis and a series of bad harvests from 1862, were followed in 1865–7 by sporadic cases of fever, mainly typhoid; but from the thrifty habits of the people and governmental support, the epidemic was at first neither severe nor extensive. Then came the cold and rainy summer of 1867, followed by a very bad harvest. That winter, typhus raged in almost every household, so that often the well were not numerous enough to nurse the sick. The death-rate rose from 2.74 per cent. to 7.69 per cent. Instead of an annual increase in the population of over 15,000, it decreased, in 1868, nearly 94,000; and this in a population of less than 2,000,000. Of 105 doctors, 30 sickened and 8 died. Up to 1868 not a case of gangrene occurred, but in the first seven months of that year 28 cases occurred. Then came the bountiful harvest of 1868, and by August the epidemic had almost disappeared. Yet the lingering effects of the previous want were seen in six later cases of gangrene. But such an experience is altogether exceptional. From other writers I have rarely obtained more than two or three cases.

Estlander's 34 cases were all, except one, from typhus; but of the remaining 79 cases, 43 followed typhoid, 22 typhus. The influence of age is not very marked, as is seen in the fact that of 67 cases, 8 occurred before 15, 27 from 15 to 25, and 32 after 25 years of age. But sex, as usual, has a marked

determining influence. Of 81 cases, 56 were males and 25 females. This is the more curious when we consider that the number of deaths in men, and therefore presumably of cases, does not hold at all the same relation. In 1868, in Finland, 31,000 males and 28,000 females died; yet of 31 cases of gangrene of the legs, 25 were males, and only 6 females. The site of the gangrene is very suggestive also. In 5 cases it was in the ears, 10 in the nose, 27 in the face, neck, and trunk, 5 in the arms, 7 in the genitals, and 72 in the legs; that is, of 126 localities, in 77 it was in the extremities, and in 22 more, in other peripheral districts of the vascular system (ears, nose, genitals).

As far as the pathology of the cases is concerned, they may be divided into two classes: 1, those with a discoverable clot; and 2, those without such a clot. Murchison believes that all cases of spontaneous gangrene arise from arterial thrombosis, but the careful post-mortem examinations of Estlander and others show, that at least in the larger visible vessels, sometimes no such thrombus exists.

1. Those *with clot.* The cause of such clots, as Humphrey[1] and others have shown, is not the condition of the bloodvessels. But seldom have I found it stated, that the arterial walls were diseased; and when they were, it was presumably a secondary process, the result, and not the cause of the clot. Few, if any, pathologists will now attribute such results, with Bourgeois, to a metastasis, especially when arising in convalescence, as these so frequently do. Gigon has attributed them to chemical alterations in the blood, which give it an irritative character, and this, with friction at points of curvature, produces inflammation and coagulation. If so, a fair proportion of cases should be seen in the upper extremities, where the same irritating blood circulates and similar curves exist. How rare this is, we have already seen.

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[1] Brit. Med. Journ., 1859, p. 582.

Although the precise factors in determining the thrombosis in any individual case may be somewhat doubtful, as also why it is frequent in one epidemic and rare in another, apparently frequent in Germany and rare in Britain, and especially in the United States, yet three causes clearly exist which may vary *inter se* in producing the result: 1, the altered blood; 2, the weakened heart; and 3, the mechanical difficulties in carrying on the circulation, especially in distant parts.

That the blood is profoundly altered, and probably has an increased coagulability, is conceded. In some cases even air is found in the veins, as noted by Crisp[1] and Lebert.[2] That every such change, besides its depressing effect upon the nutrition, and therefore upon the vitality of the tissues themselves, would interfere more or less with its circulation, and consequently predispose to thrombosis, is most probable. But when we look at the seat of the cases of gangrene of both varieties which are under consideration, I think the conclusion is inevitable, that the last two causes are the more immediately determining factors.

The heart, as Stokes showed, is softened in its texture, and therefore weak. Hayem (see bibliog.) has shown that myocarditis is extremely frequent, and not rarely involves the endocardium. From the sixth to the fourteenth day is its weakest period, and not only is the general force of the circulation diminished at this time, but all the blood not being squeezed out of its cavity, clots may form in the heart, and then, or at a later period, when the heart regains somewhat of its force, be washed into the circulation and lodge as emboli. Such seems to have been the origin of the clot in a remarkable case related by Patry.[3] A decolorized adherent embolus was

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[1] Dis. Bloodvessels, p. 18.

[2] Prag. Vierteljahr. 1858, i. 33. Moorehead, Trans. Med. and Phys. Soc., Bombay, 1843, p. 68, also reports a case.

[3] Archiv. Gén., 1863, i, 144.

found high up in the left external carotid, on which a secondary thrombus had formed nearly down to the bifurcation of the primitive carotid. Pain appeared from the jaw to the temple on the twentieth day of typhoid, two days later the ear was cold and violet, the artery pulseless, and the gangrene rapidly extended to the entire left side of the head and face, involving even the bones. I have found, however, but eight other cases in which the embolic nature of the primary obstruction was clear; but often the want of a minute examination of the clot renders the report useless; and sometimes probably the primary embolus is so overshadowed in size and importance by the secondary thrombus as to be overlooked.

The third factor, the mechanical difficulties of the distant circulation, combines almost inextricably with the weakened heart in producing the spontaneous coagula or thrombi. It is, nevertheless, clearly the principal factor in precipitating the gangrene in the lower extremities. Not only, however, are the inferior parts of the body thus involved in gangrene, but the frequency of venous thrombi, and the resulting phlegmasiæ in the same region, is a strong argument in the same direction. Bouchut[1] found in 51 cases of non-puerperal venous coagula, that 44 were situated in the pelvic, femoral, or tibial veins. I have memoranda of 63 cases of venous coagula following the continued fevers in which the site is stated. Only two cases involved the upper extremity alone, and were both followed by gangrene; one involved both the arm and leg; all the other 60 cases were limited to the lower extremities.[2] Both forms of coagula—the arterial and the venous—form most frequently, during or just after the period of greatest cardiac weakness—a weakness felt most at such distant points as the legs. Of 18

[1] Gaz. Méd. de Paris, 1845, p. 241.

[2] See a very interesting case which got well after a second attack of typhus thirty years later. Stokes on Fevers, Phila., 1876, p. 249 (republished in Med. News and Library).

arterial cases 12, and of 43 venous cases 24 occurred in the second and third weeks of the fever. Moreover the preceding circumstances, such as famine, individual poverty, and the deprivations of war, are such as impair the nutrition and the circulation in the peripheral districts of the body. The coagulation also takes place at points mechanically favorable to slowing of the currents, *e. g.*, the bifurcation of arteries and the valves in the veins.[1] In the veins at least, as described by Humphrey, the clots are sometimes laminated, the outer layers of decolorized fibrin, and therefore the oldest, and the centre, a bar-like recent coagulum of dark or black blood.

Once that the obstruction exists in the artery, it extends by additional coagulation, so that the collateral circulation may be widely and rapidly cut off. The progress of the clot can often be watched from day to day by the progressive annihilation of the pulse, first, for example in the tibial, then in the popliteal, then in the femoral or higher; and by the parallel progress of the gangrene. In cases of recovery this cessation of the pulsation and the hard tender cord in the course of the vessels are of course, the only, but sufficient proof of their occlusion. That gangrene follows so much more frequently in febrile thrombosis than after the traumatic thrombus which accompanies ligation, is not surprising, in view of the condition of the blood, the general enfeeblement, and the more widespread arrest of the collateral circulation. Yet, on the other hand, pyemia, which has so much to favor it, especially in the cases of venous thrombi, is a rare sequel. Even when it does follow, it is in most cases apparently the secondary result from the septic influences arising from the gangrenous parts.

The circulation in the artery being cut off, it is not strange that clots should follow in the veins, but even where both are

[1] See a carefully reported case of Phlegmasia by Cole, Med. Times and Gaz., 1875, i. 5.

obstructed, moist gangrene rarely follows. The foot especially generally mummifies. But this is not always the case. Occasionally the gangrene is moist from the beginning, from early obliteration of the vein, or having begun as dry gangrene, *e. g.* of the foot from a popliteal clot, suddenly both the femoral artery and vein may be obstructed, and a moist gangrene of the leg or thigh be added. Gangrene from venous obstruction alone is very rare. It is more apt to follow in the arm than the leg.[1]

Coagulation of the blood may also be caused occasionally by direct mechanical causes in fevers, as in a case given by Jaesche, in which a swollen gland surrounded the common iliac artery at its bifurcation and caused a clot, probably by direct pressure or by induced arteritis.

2. The second variety of spontaneous gangrene is that in which *no clot* apparently exists—certainly no such clot as is commonly designated either an embolus or a thrombus, that is, a local clot in an arterial trunk of some size which cuts off the circulation in the tissues supplied by its branches. But even in these cases I believe that the conditions affecting the circulation already so fully considered, will more readily and rationally explain the causation of the gangrene than any specific action of the indefinite though undoubted poison of the fever. Coagulation I believe still to be the cause, but not in the larger trunks. It begins rather as a blood stasis in the capillary circulation. The parts in which the often extensive coagulation takes place are at once struck with gangrene, and, as the blockaded vessels themselves are all involved in the general destruction of the gangrenous tissues, all evidence of the nature of the lesion is thus destroyed. This form of gangrene occurs generally in the nose, ears, penis, perineum,

[1] Hueter (Virchow's Archiv, xvii, 48) records, however, a very interesting case of gangrene of the right leg following a spontaneous clot without assignable cause, the vein wall being healthy.

labia, feet, and occasionally the fingers, that is, in parts supplied by no one large vascular trunk, but by many smaller branches; not only in parts distant from the centre, such as the feet, but in parts which lose their heat most readily by reason of their thinness and small size; and parts irritated, it may be by local discharges. Very probably, also, it may be due to the fatty degeneration of the smaller arteries as observed by Hoffman, Zenker, and Ponfick. Raymond (and following him, Fischer and Estlander) ascribes it to a spastic ischæmia, from contraction of the arterioles. The frequent bilateral or symmetrical character of this variety, to which Raymond has called especial attention, would indicate, at least, the probability of some such central cause. Whether, if it exist, it be the direct result of irritation of the nerve-centres, as is seen in the other nervous phenomena of fever, or whether it be a reflex spasm caused by the circulation of a deteriorated blood, similar to that to which Dr. George Johnson has attached so much importance in Bright's disease, we can at present only surmise.

The symptoms of gangrene are marked and characteristic. Towards the end of the fever, especially in the third week, or early in convalescence, as weakness is giving place to strength, and the brightest hopes of speedy recovery are cherished, sudden, severe, and persistent pain is felt. Usually it is at the seat of the impending gangrene, though not uncommonly at the clot itself, radiating thence to the periphery. In the lower extremities it is often felt in the ball of the great toe or in the heel. It is followed by numbness, coldness, loss of sensation, and sometimes of motion, and in a short time discoloration and all the other usual evidences of gangrene appear. Sometimes, but not usually, these local symptoms precede the pain. If the distal vessels be examined, the pulsation will be found feeble or utterly extinguished, while higher up at the seat of the obstruction they will be changed into moderately firm but

tender cords in which we may sometimes differentiate the artery from the vein—an important point in prognosis. Week by week, sometimes day by day, the progress of the coagulum may be traced upwards by the abolition of the pulsation and by the upward march of the gangrene. If old cicatrices exist they will be among the earliest parts to yield. Blebs may form in the early stages, but most frequently they will dry up and the parts will mummify, although, as already indicated, moist gangrene may supervene if a large clot form higher up or if the veins are extensively obliterated, thus involving great masses of moist tissue, such as the thigh, in sudden ruin.

Life may be rapidly destroyed, as in a case recorded by Barker and Cheyne,[1] in two and one half hours after gangrene began in the nose; but more commonly days or weeks will elapse during which nature as usual makes a powerful effort to rid herself of the dead parts by the establishment of a line of demarcation. On the establishment of this, the pain often ceases.

If recovery follow, the circulation is carried on by collateral branches, or in very rare cases the artery again becomes partially pervious.[2] This last result Humphrey has shown to be not infrequent in veins, and Pètres[3] has recently elucidated its mechanism through the extension and coalescence of the vasa vasorum.

In the variety of gangrene without a thrombus, the symptoms will vary somewhat. It is not so uniformly in the lower extremity, and is much more frequently symmetrical. If small in extent, pain is not apt to be a leading feature. The onset is often earlier, and from the nature of the case its progress is sharper and its limits much more quickly defined, so that usually, within a few days at least, the boundary of the gan-

[1] Vol. i. p. 232. [2] Patry, Archiv. Gén., 1863. i. 136.
[3] Edinb. Journ., Aug. 1875, p. 175, from Le Progrès Méd.

grene is pronounced, since it does not progress with any gradually growing thrombus. For the same reason it less frequently returns in the stump after an amputation. Its area also is usually much less than those cases in which a thrombus exists, rarely extending in the leg beyond the foot or ankle; and it rarely involves surrounding parts to a large extent, if it occur in the nose, ear, genitals, etc. Sometimes, however, it may extend more widely, as in a case of typhus and starvation, mentioned by Lyons,[1] in which the patient walked to the workhouse, and on baring his chest the whole of the right side was "a dark, olive-green, jelly-like, tremulous mass." The abdominal wall is somtimes similarly involved. The probably irregular area in which the stasis of the blood will take place in this form, also accounts for the great irregularity generally seen in the line of demarcation; whereas, if a clot exists, it is apt to be fairly even. This sudden history is usually followed by a speedily decided issue. Death follows quickly, or reaction and recovery set in within a short time, instead of hanging in the balance for months.

The *results* of spontaneous gangrene vary much according to its situation and extent. In the extremities, if life be saved, the result is usually an amputation, either by nature or by the surgeon. In the nose, it may perforate the septum or destroy the entire organ to a greater or less extent. During some civil, as well as military, epidemics of typhus, this seems to have been a favorite spot for its beginning, so that the disease was popularly known early in this century as the "Blue Nose";[2] and inspired terror whenever it appeared. In 1834, Mauthner says, it was an extremely common result, seen in all the military hospitals, and "all hope was gone as soon as this dreadful symptom was seen." Another not infrequent form is

[1] On Fever, p. 191.

[2] See Mauthner, Kraft, Gutberlet, Wendelstädt, and Barker and Cheyne. i. 232.

noma, or cancrum oris. This is especially frequent in children and in the army. Murchison speaks of it in the Crimea, as frequent and invariably fatal; Chénu, however, in his report does not name it. Its ravages are extremely extensive, often involving even the bones.

The ear, also, and the eyelids are sometimes destroyed. From each of these, singly or all together, the most frightful deformities often follow, which require the utmost ingenuity in the plastic operations necessary to remedy them. In many cases the gangrene is local and subcutaneous, producing necrobiotic masses of tissue, which are, I believe, often, if not generally, the cause of the abscesses so commonly seen in all parts of the body. Sometimes even the mediastina are opened, the anterior from the chest wall, the posterior from the deep tissues of the neck;[1] unless, by a timely surgical operation, the danger be averted.

The male genitals are occasionally destroyed to a greater or less extent. Except the organic destruction, no special result follows, except, possibly, hemorrhage, for one case is recorded of death from a hemorrhage of fl℥xxx from the scrotum.[2]

That the perineum and the female genitals are not more frequently the seat of gangrene, is rather surprising, when we consider the neglected condition of many of the patients and the constant soiling of the parts, as a result of unconscious and unavoidable discharges, especially in females. The troubles of the female generative organs are either distinct external gangrene, or gangrenous ulcers in the vagina. I have found 9 cases, 8 from typhoid and one from typhus; all in young persons from 17 to 27 years of age, except one of 34. In 6 of the cases there was gangrene of the labia, extending sometimes to the perineum and the thigh. At least one case was followed by

[1] See Bibliog. Fraentzel, Werner, and Hoffman, p. 388.

[2] Murchison, p. 194.

contraction of the vulva.[1] In another, reported by Guéneau de Mussy, there was complete occlusion of the vagina and menstrual retention, necessitating puncture, with a fatal result. The ulcers are generally on the posterior wall of the vagina, and in three cases recto-vaginal fistulæ have resulted. One is reported by Lebert, in which, when convalescent in the seventh week, chill, fever, and diarrhœa set in, and four weeks later the fistula was discovered by injection. It was situated in front of the hymen, and was as large as a 5-centime piece. A month later she died of pelvic peritonitis. A second is reported by Liebermeister.[2] It was caused by the sloughing of a large piece of the recto-vaginal septum, in mass. The large fistula thus produced healed without operation. The third case has been under my own observation, in St. Mary's Hospital, for three years past, and is the only case I have found of both recto-vaginal and vesico-vaginal fistulæ. Up to March, 1872, she was perfectly healthy, when, at the age of thirty-four, she had a severe attack of typhoid, for four months, following exhaustive nursing during her husband's fatal illness. About the fourth week the labia sloughed away to a large extent, and both water and feces passed by the vagina. In October 1872, she was admitted to the hospital, under the care of my colleague, Dr. Grove, having two large vesical openings (separated by a slight bridge of tissue), which destroyed the posterior part of the urethra and all the floor of the bladder up to the uterus; and one rectal opening an inch in diameter, one and a half inches above the anus. Dr. Grove operated on her three times unsuccessfully; once on the rectal opening by the rectum, when he divided the sphincter, and twice by the vagina. From Dec. 1873 to Dec. 1875, I have done nine operations. Thrice unsuccessfully I attacked the fistulæ proper, when, becoming convinced that the attempt

[1] Russell, Glasgow Med. Journ., 1864–5, xii. 165.
[2] Ziemssen's Cyc., Amer. ed., vol. i. p. 184.

to close them was hopeless, I proceeded to close the vagina. At first I attempted to preserve and utilize the remnant of the urethra, which gave me great trouble and necessitated several operations; but at the last operation, Dec. 28, 1875, I gave up the attempt, excised the useless urethra, and closed the entire vulval aperture by ten wire sutures. The operation has been a complete success. At present, after nearly seven weeks, she defecates, menstruates, and micturates entirely by the rectum, and without the slightest trouble. She rises usually once, sometimes twice, in the night, and micturates only five or six times during the day. My greatest fear has been that the softened feces would pass into the vagina or bladder and give trouble, but thus far at least, none has arisen, and she is happily rid of the annoyance of four years.[1] In the last four operations, instead of the usual sigmoid female catheter to empty the bladder, I inserted the curved branch of a pocket case male catheter into the vagina and bladder, by the recto-vaginal fistula, thus draining these cavities, while I drained the rectum below the eye of the catheter, by an ordinary drainage tube inserted into the rectum, lest the feces should be softened and then pass into the vagina. They answered admirably. The difficulty in obtaining a cure, I believe lay partly in the inherent difficulty of the case, and partly in her deteriorated health ever since the fever.

The perineum suffers mostly in males as 8 to 3, while in 2 cases the sex is not stated. Typhoid was the cause in 11, typhus in 2. Although not all cases of gangrene, they may be surgically grouped together, since all but one produced perineal fistulæ. The exception[2] was a case fatal from a large

[1] Soon after this was written, a small fistulous opening appeared in the cicatrix, caused probably by the feces. This healed after a thirteenth operation, and now (May, 1877) she has remained entirely well for over fifteen months. The rectum has answered perfectly both for the urine and the menstrual discharge, as stated above.

[2] De Change, Arch. Belg. de Méd. Mil., 1861, xxviii., 126.

abscess around the membranous urethra. Three fistulæ were caused by necrosis of the pelvic bones or sacrum, and nine by gangrenous ulcers, which sloughed not only externally, but in five, certainly communicated with the rectum, and probably did so in others. Except two cases of 21 and 22 years of age, they all occurred (when the age is stated) from 39 to 74 years of age, later in life than most of the other sequels. They arose from the third to the seventh week, that is, during distinct convalescence, and to this is probably due the fact that 10 recovered and 2 died, one from the peri-urethral abscess, the other from hemorrhage upon sloughing into the rectum.

The question of *treatment* of gangrene is, after all, the most important in a practical point of view, and is divided naturally into the preventive and remedial. The general supporting treatment of the disease is, of course, the most important preventive. Next, a careful and repeated examination of the body, especially the parts most likely to be attacked. If gangrene is specifically threatened, stimulation of the circulation, both at the centre and at the threatened spot, is imperative. To stimulate the centre, alcohol in liberal doses is the best remedy, and two extremely instructive cases are given by Stokes.[1] In one, "the surface was cold, and the pulse imperceptible. From the middle of the calf of each leg downwards over both feet, the surface was black, the skin hanging in loose wrinkles, giving an appearance as if the patient had on a pair of black socks." Sixteen ounces of brandy in the first eight hours saved his life. Digitalis might also possibly be used with advantage. The peripheral circulation must be stimulated by such means as will assist the threatened circulation by inducing alternate dilatation and contraction of the arterioles. Permanently wrapping up the part in cotton, and other similar means, will but assist permanent vascular dilatation and stasis.

[1] On Fever, Phila., 1876, p. 205.

The alternation of the two is the condition of health, and its artificial production will tend to restore healthful reaction.

Chapman's ice and hot-water bags to the spine, alternate heat and cold directly to the parts, with proper friction and stimulating liniments, at once commend themselves to us. The constant current battery also may prove an extremely useful aid, since it dilates the deep as well as the superficial vessels, and will aid the collateral circulation.

But suppose gangrene actually occurs, what then? Estlander gives most judicious counsel here. We must remember that good results follow both to life and limb *without* operation, especially if the gangrene be limited and the patient not too exhausted. We must not, therefore, be rash in our interference. If amputation has to be done, the question as to where it should be done, depends on the probable extent of the gangrene; as to when, on the line of demarcation. In the non-thrombotic cases, as the line of demarcation is usually established within two or three weeks, and the disease is not then likely to be progressive, the amputation may be done but little above or even through it. It is, therefore, usually best to wait for its formation. In the thrombotic cases, the clot and the gangrene *are* apt to be progressive. Until the line of demarcation forms, therefore, it is impossible to say precisely where the disease will stop. Yet we can gain some idea of the probabilities of the case from past experience.

If the clot extend no further than the popliteal, the limb may escape gangrene altogether, and if it follow, I have found it limited in 9 cases, to the foot 4 times and to the upper calf in 5; if the clot extend into the femoral, I find the gangrene extended to the upper calf in 6 and to the thigh in 4; if the clot extend above Poupart's ligament, I find in 10 cases it was limited to the foot in one, the calf in 3, and extended above the knee in 6. The results of amputation are good, giving 21 recoveries to 21 deaths, but the recoveries are largely after

amputations in the foot. Before demarcation was established, 5 out of 8 died; after demarcation, 12 out of 22, a mortality, respectively, of 63 and 55 per cent. As a rule, therefore, wait for the line of demarcation, but amputate soon after its appearance; but if danger of septic poisoning, or of speedy exhaustion should appear, amputate at once, at or above the probable limitation of the disease, which, if the femoral be free, will not be, in the majority of cases, above the tubercle of the tibia; but if the femoral be involved, amputation would probably be more dangerous than the expectant treatment. As dead parts slough, they should be removed to prevent septic poisoning. Fortunately there is but little danger of hemorrhage, either primary or secondary, in the thrombotic cases, since the arteries are all plugged securely.

Of course, the ordinary treatment of the gangrenous ulcers and abscesses, especially of the perineum and genitals, should be pursued, but I would especially urge the importance of free incision, especially in abscesses in the vicinity of the anus, and the use of detergent and stimulating washes in the vagina in case of sloughing of the labia, in order to prevent in both cases the establishment of fistulæ.

V. HÆMATOMATA.

The muscular system suffers, in typhus and typhoid fevers, in common with almost every other tissue of the body, undergoing a peculiar form of degeneration, resulting sometimes in rupture and the formation of hæmatomata. These, although not so strictly surgical as some of the other diseases noted, yet, as their proper surgical treatment is so important, I shall notice briefly.

Apparently, the first published case was observed by that shrewd surgeon Velpeau, in 1819, in the post-mortem examination of a soldier at Tunis. "Rupture of the muscles of the

belly," says he, "is not surprising. The organs become so fragile in advanced stages of putrid fever that their rupture is a phenomenon which is easily conceived when the patient in his delirium moves so irregularly." In 1844 Rokitansky noted their relation to typhoid. Virchow studied them also in 1857. In 1864, however, Zenker first studied the subject thoroughly. Since then, but especially within the last five years, they have been frequently observed or studied, mostly, however, from a pathological standpoint.

The muscular changes to be described are so frequent as to be almost an essential part, at least, of typhoid. Yet they are not peculiar to these fevers. They are said to have been met with in phthisis, scurvy, scarlet fever, cholera, pneumonia, dysentery, measles, tetanus, Bright's disease, cerebro-spinal meningitis, muscular traumatism, and I have seen a similar change in the muscles of the abdomen, in cases of large ovarian tumors.

There are two independent forms: 1, a granular degeneration of the muscular fibres, which is least frequent; and 2, a waxy change, which is by far the commonest. In the microscope the muscular tissue presents a glassy, translucent, slightly opalescent, shiny appearance, the fibres being swollen to even double their usual size, and changed to fragile cylinders. Sometimes the muscular tissue resembles even the flesh of fish. The nature of the change is as yet greatly disputed. Erb, Bernheim, and others attribute it simply to post-mortem imbibition; Hayem, to proliferation of the tunica intima, which, with granulo-fatty change in the arterial walls, produces an obstructive arteritis; Zenker ascribes the degeneration to the disturbance of a centre which regulates the nutrition of the muscles; Waldeyer, Hoffman, Ranvier, and Weihl believe that it is a coagulation of the myosin; and Liebermeister that it is due to the long-continued high temperature. Whatever the cause, the muscles become extremely

fragile, and when they are called into play by the distension from meteorism, by the efforts at coughing and other violent respiratory acts, by defecation, rising in bed, the movements of the legs, etc., they rupture with the greatest ease. Spasm or direct violence does not seem to have been noticed in any case. The arteries, which have also undergone an analogous change, are involved in this rupture, and muscular hemorrhages result. These assume three forms, according to their size and mechanical limitation: 1, ecchymoses; 2, diffuse infiltration into the muscular tissue, soaking it with blood; or, 3, distinct hæmatomata, the last being the most important and probably the most frequent. The effused clot, at first hard, well defined, and sharply limited, gradually softens and not infrequently suppurates, thus producing serious abscesses which, unless opened, may even burst into the peritoneal cavity.[1] Meanwhile the swollen muscular fibres gradually undergo re-absorption, until, finally, they disappear entirely, and a new formation of cells takes place in the perimysium, which, according to Hoffmann, first become spindle-shaped, then coalesce endwise with one another, and gradually assume the appearance of striated muscular fibre. Complete repair is then effected. The resemblance of these spindle-shaped cells, which are nascent muscular fibres, to the muscular fibre-cells is most striking, and seems to form a link connecting the two forms of muscular tissue, the striated and non-striated, such as I have long taught to be probable.

Almost all of the muscles may be thus invaded, but the favorite seats both for the degeneration and the hæmatomata are in the recti abdominis and the adductors of the thigh, then in the pectorals, and, as Hoffmann has noticed in 16 cases out of 22, in the diaphragm. The influence of the phrenic lesion in enfeebling the respiration is, perhaps, more

[1] Wenzel Gruber in Jacops' Thesis, p. 42.

serious than has been recognized. Zenker gives the adductors the first place, and Hoffmann reports the adductors involved in the degenerative changes in 75 out of 107, the recti in 87 out of 127. While this may be true of the degenerative process, yet the hæmatomata are certainly most frequent in the recti. Of sixty positions in cases I have collected from every side, they were in the recti in 27, and the "abdominal muscles" in 9, in the adductors but 5 times, and the upper extremities but twice.[1] If in the adductors, they may burrow so as even to strip off the periosteum from the bone. Hæmatomata are even found in the inter-ventricular septum of the heart itself.

Stokes suggests that febrile deafness and hoarseness may result from a similar degeneration of the muscles of the ear and the larynx. There are no post-mortem examinations on which to found such an hypothesis, and the fact that hoarseness and deafness are so often not seen, and that, as I have shown,[2] other and sufficient causes are found at least in the larynx, render the idea scarcely tenable.

Typhoid was the preceding fever in 44 out of 46 cases, but the severity of the fever seems to have but little influence. Nineteen out of 25 cases occurred from 15 to 25 years of age, and 22 were males as against 8 females. They rarely appear before the third week, since the muscular fragility is then at its height. Of 23 cases I find 19 arose in the third, fourth, and fifth weeks of the fever. Regeneration of the muscles usually begins at the third or fourth week, and is accomplished by the seventh, after which time they do not appear. Their period of development is therefore quite sharply defined by the anatomical history.

As in dislocation of the hip-joint, the symptoms are often

[1] In the recti they are, I believe, invariably below the navel, possibly on account of the absence of the support derived from the lineæ transversæ.

[2] Ante, p. 25.

nil. Indeed, of 47 cases, I find 10 were wholly unsuspected until revealed at the post-mortem. The position of the tumor accounts in part for this. Both in the thigh and in the abdominal wall they are almost always in the posterior part of the muscle—a position due probably, to the effect of gravity in the recumbent posture. Often, indeed, they are so deep as to extend to the pelvic and iliac muscles, and in two cases, under the serous coat of the bladder. Hence there is usually little or no discoloration of the skin, though Foucault reports a case with ecchymosis in the hypogastrium, extending later to the scrotum, thighs, and buttocks Swelling is only reported 13 times, and fluctuation but 10 times. Suppuration and softening are but rarely attended with any special fever. Pain is mentioned in 14 cases. Flexion of the legs to relax the abdominal wall, which we would suppose to be frequent, is named but once. The size of these blood tumors varies from that of a bean to that of an orange. If small, they may be obscured by meteorism; the symptoms then being so indecisive, as in many of these surgical sequels, the necessity for frequent and rigid physical examinations is at once apparent. If a sudden and fixed pain exist in the recti below the navel, or even if movements be only hindered or uneasy and painful, a close examination should be made, and if a tumor or only hardness be found, it should be carefully scrutinized, from day to day, especially for the pasty feel and other signs of œdema, and of fluctuation. The differential diagnosis is not usually very difficult. The most likely error, if in the rectus, is that of mistaking it for a distended bladder, but the catheter will at once unmask this error. If in the right iliac region, it may be mistaken for perityphlitis; or in the adductors, for a simple abscess; but, as in point of practice, the treatment of all three would be more or less similar, the error is of less moment than might be supposed. From aneurism, an abdominal tumor, and peritonitis, the differential diagnosis is sufficiently easy.

The *treatment* is important, especially when we consider the results. Of 13 cases opened by incision, only 2 died; of 34 in which there is no mention of an operation, all died. If small, they will either be overlooked until the post-mortem reveals their existence, or if recovery take place, absorption of the clot, and regeneration of the muscle will follow, independent of treatment. If large, every possible effort should be made by poultices, etc., to bring about early softening, and as soon as softened, they should be opened. That the aspirator may be of service, is probable, but as yet it is, I believe, untried.

VI. PAROTITIS.

Parotitis is occasionally an exceedingly important surgical complication, whose onset is always to be dreaded, lest it bring in other evils worse than itself. Murchison believes with Graves that the inflammation begins in the areolar tissue between the lobules of the gland itself, but Hoffmann has unquestionably shown that, at least in typhoid, the pancreas and all the salivary glands are in a state of rapid cell proliferation in nearly every case, and that parotitis proper is merely "an exaggeration of the changes that usually take place in this gland during typhoid fever, and bears the same relation to these changes that ulceration and perforation of the intestine do to the infiltration of the intestinal follicles." This exaggeration he believes to be due to the dense parotid fascia which compresses the gland. But this is not the only role this dense investing fascia plays. The compression of the swollen tissues not rarely produces gangrene, so that the entire gland may slough out in great masses like tow. In a case related to me by Dr. Grove, it involved both glands and proceeded so far that the fingers could almost meet behind the pharynx. The compression also is very favorable to thrombosis, which may extend to the brain by the diploic veins or even to the internal jugular itself. Necrosis and septicæmia not rarely

follow in its track. In two cases I have found facial palsy, from involvement of the seventh nerve. Facial deformity and anchylosis of the jaw are sometimes seen. In none does hemorrhage from the carotid appear to have followed.

The death-rate is largely increased in such cases, since of 352 cases, 125 died and 227 recovered, a mortality of nearly one-third. The sex is named in only 19 cases, of which 14 were males. Contrary to the fact in other complications, except in perineal fistulæ, this disease is most common after 30. Of 211 cases, the average age, according to Murchison, was 31½. It is certainly very rare in children, for I have found but 2 cases under 15. Typhus was the preceding fever in 352 cases, and typhoid in only 26. Most cases do not go on to suppuration, for of 101, I find 40 suppurated and 61 did not. The abscesses generally discharge by one or often by several openings, the external meatus being frequently one of them. As Nélaton has pointed out, even where it has thus opened, if we would avoid burrowing and other subsequent troubles, we must open it still more freely, in order to divide the parotid fascia.

CONCLUSIONS.

If now, by way of review, we cast our eyes back over the general results of all the complications and sequels we have studied, we may arrive at some useful and important conclusions.[1]

1. Typhoid, probably from its usually longer duration, is by far the more prolific source of such surgical troubles except parotitis, especially when we consider that many cases tabulated as typhus are really typhoid. Of 433 cases, typhoid was the preceding fever in 252, typhus in 119, and other forms of continued fever in 62.

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[1] In this summary I have not included the cases of parotitis in the figures.

2. The surgical troubles to be apprehended in typhus are mainly restricted to gangrene and laryngeal stenosis, 103 out of the 119 cases being due to these two classes of disease, while typhoid bears in its train any and all of the forms of disease described.

3. The age is about the usual age of greatest frequence of these fevers.[1] From 15 to 25 years is by far the most frequent decade, counting 133 cases against 129 at all other periods of life. One singular exception is to be made, viz., the articular troubles, and especially dislocation of the hip, 21 out of 23 cases being under 20 years of age, of which 15 were in children under 15—in striking analogy to the frequency of coxalgia in children.

4. Sex is an unexpected and important factor in the predisposition to febrile surgical troubles. Of 303 cases in which the sex is named, 218 are males and 85 are females, or over two and a half to one. What is the normal proportion of the sexes in fever, it is difficult to determine. In nearly 6000 cases of typhoid, Murchison gives the proportions as precisely equal, and in over 18,000 cases of typhus the females were in a decided majority (8871–9267). Estlander's figures would give us a slight preponderance of males, while Liebermeister, in over 2000 cases of typhoid, gives 1300 males and 750 females.

Unfortunately, I omitted to tabulate the number of cases arising in military practice, which I am sure is not inconsiderable; but while this will account to some extent for the predominance of males, it could not be adduced in the cases of arthritis and dislocation, since most of the patients were children, yet the males were in the preponderance.

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[1] Leibermeister gives the ages in typhoid, as follows: 15–30, 1310; 30–71, 394, total 1704. None under 15 were admitted. In typhus, 15–30, 39 per cent.

Murchison gives in typhoid: 15–25, 2752; all other ages, 3159, total 5911; and in typhus, 15–25, 5332; all other ages, 12,806, total 18,138.

5. The period of development is not the initial period of the fever, but first, from its height to its close, that is, the complications, especially gangrene and stenosis of the larynx; and, secondly and most frequently, during convalescence, that is, the sequels. Of 240 cases, only 12 arose in the first week, 38 in the second, and 48 in the third, a total of 98. If we may assume that convalescence, on the average, begins at the end of the third week, then 142 occurred during convalescence, when health is apparently in the near future.

6. The lower half of the body is the especial seat of such surgical troubles. With the exception, of course, of the laryngeal cases and parotitis, of 307 cases 216 occurred in the pelvic region and legs, as against 91 in all other parts of the body. Moreover, the diseases attacking the upper half of the body are limited almost entirely to local gangrenes and caries and necrosis, and they are usually far less severe in type and more limited in extent than those in the lower half. Here, whole limbs are blighted by gangrene, here occur most of the dislocations, the hæmatomata, the fistulæ, here the severest necroses and largest abscesses, and were we to add the long catalogue of bedsores and phlegmasiæ, the preponderance of the lower half of the body in importance would be still further increased.

7. The *diagnosis* is, in general, moderately easy. The danger is not that difficulty of diagnosis may obscure the case, but that the diseases may be entirely overlooked. They occur most frequently in parts of the body covered by the bedclothes, parts which require time and trouble to expose and examine in the routine of an ordinary visit. Moreover, the patient is frequently so apathetic and insensible to pain, that he does not complain, or, if he do so, it is ascribed to the ordinary pains so frequent in the belly and legs in such fevers, or else to delirium itself.

Hence the most important hint I can give in the diagnosis—

and where indeed does the same rule not hold good?—is, that time and trouble *must* be taken, and that no patient, suffering from a continued fever, and especially from typhoid, should escape frequent, minute, complete, physical examinations, in which every part of the body from head to foot should be questioned. Especially should the physical condition of the larynx, the belly, the legs, and the toes, and in children, the hip-joint, be exactly ascertained. This should be done at least every second day, and that too, not only in severe, but in mild cases, and not only during the fever, but especially in early convalescence, for it is in just such mild and convalescent cases that the wariness of the doctor is the patient's surest reliance. Particularly should attention be paid to hoarseness or even the slightest change in the voice, and the larynx be examined at once with the greatest care from day to day, by the eye, the finger, and the laryngoscope, lest sudden œdema or the more insidious and more fatal necrosis of the cartilages be impending. The eye should seize upon any hindered movements, even without discomfort, and no complaint of pain should fall upon a deaf ear, especially if it be in the throat, the belly-wall, the buttock, the hip-joint, the legs, or the toes. True, it may mean nothing. It may be the vagary of a wandering mind. But it may also be, as we have seen, the herald of the gravest dangers whose attack may be entirely repelled or their force broken by heeding this timely warning.

8. The prognosis is naturally unfavorable, yet not to the extent we would suppose from the addition or sequence of such serious disease. Of 383 cases in which the result is named, 220 died and 163 recovered, a mortality of 57½ per cent.

9. Still more clearly I think, after such a review, do we see the powerful influence of mechanical causes as the proximate factors in the production of such troubles, working in conjunction with the profoundly vitiated blood. With the exception,

perhaps, of the almost constant muscular degeneration, and its not infrequent subsequent hæmatomata, these surgical results are not usually primary but secondary processes; not dependent directly on the fever-poison, but its indirect and often distant results; not constantly seen, but incidental, indeed, often rare; not parts of the fever, but its complications and sequels.

Pathologically all these results may be grouped into two categories, viz.: 1. Those in which a clot exists; 2. Those without any clot.

1. Those in which emboli of cardiac origin, or more frequently local thrombi exist, are unquestionably most of the cases of extensive gangrene and phlegmasia. In many other cases in which such a clot is at present unsuspected, I believe that more careful examination will reveal its presence in the smaller vessels, and prove that if venous, it may be a cause of œdema glottidis, and if arterial, of the local necrobiotic processes, which result in necrosis of the bones, and probably of the cartilages of the larynx, and gangrene of the soft parts with its abscesses, fistulæ, etc.

2. Those in which no clot exists, and yet œdema glottidis, dropsy, and dislocation of the hip, gangrene, ulcers, necroses, perichondritis, and other similar troubles occur. These are especially often ascribed to the fever-poison itself, acting locally and producing, for instance, the so called laryngo-typhus, the abscesses and ulcers in the skin and subcutaneous tissues etc., which are regarded as specific. While not denying this view outright, and especially in some cases, I feel still more strongly disposed to look upon them as allied disorders, the immediate results, as in the case of the pneumonia of fevers, of mechanical conditions, which produce a local stasis of the blood followed by œdema, low forms of inflammation or gangrene. True, these results of fever are most frequent in severe cases and severe epidemics, in which the poison

would be the most virulent, but it must also be remembered that such epidemics and such cases are themselves, as a rule, the result of exceptionally depressing pre-existing causes, such as famine and war, want and sorrow. Even simple inanition alone will produce identical results in many cases.

But it is especially when we consider the position of the troubles that this mechanical factor is apparent. Their posterior position, as is seen in the laryngeal ulcers, the perichondritis, the vaginal ulcers, the fistulæ, and in the hæmatomata the posterior surface of the recti and adductors, is most significant. Likewise is the fact that all such complications as we have seen, are especially frequent in the lower extremities, that is, in parts mechanically unfavorable to a ready return of the blood and eminently favorable, if not to thrombosis, at least to stasis.

10. The *treatment* must be bold, but not rash; conservative, but not timid.

NOTE.—After the portion on Diseases of the Joints was stereotyped, I received a letter from Dr. V. P. Gibney, of the Hospital for Ruptured and Crippled, New York City, giving the results in 860 cases of disease of the joints. The following is the only case which followed any continued fever, and it is not tabulated with the others.

"William H——, æt. 12, presented himself at the out-door department of the Hospital for Ruptured and Crippled, May 2, 1876. His general condition was good. The right hip was anchylosed with the thigh, abducted, semiflexed, and rotated inward, the trochanter carried upward, and the pelvis tilted to the right side. There was apparent shortening of the limb, but the real shortening was not ascertained. The thigh was atrophied three inches. Immense cicatrices of bedsores were found, one over each posterior superior spine of the ilium, one over the right natis, and one over each trochanter major, that over the right being the deeper, and covered by a scab one and three-fourths by one and a half inches.

"Prior to October, 1875, he was in perfect health, but was taken that month with typhoid fever, and lay very ill for six weeks, during which illness, the bedsores formed, and during convalescence the deformity at the hip was observed. This history I obtained from the mother, who was very intelligent. At the time I saw him, the disease was practically arrested."

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[1] In the preparation of this contribution to the Bibliography of the subject, I must acknowledge my very great indebtedness to the card catalogues of the National Medical Library, and of the private library of Dr. J. M. Toner, and my personal indebtedness for many facilities to both Drs. Toner and Billings.

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LECTURE VI.

SUBCUTANEOUS SURGERY:

ITS PRINCIPLES, AND ITS RECENT EXTENSION IN PRACTICE.

BY

WILLIAM ADAMS, M.D., F.R.C.S.,

PRESIDENT OF THE MEDICAL SOCIETY OF LONDON.

DELIVERED SEPTEMBER 13, 1876.

WASHINGTON:

SMITHSONIAN INSTITUTION.

APRIL, 1877.

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LECTURE VI.

Delivered September 13, 1876.

ON SUBCUTANEOUS SURGERY: ITS PRINCIPLES, AND ITS RECENT EXTENSION IN PRACTICE.

By William Adams, M.D., F.R.C.S.

Gentlemen: Before commencing the subject-matter of the present address, I feel it to be my first duty, and one which I have the greatest pleasure in performing, to acknowledge the honor conferred upon me by an invitation to deliver in this city an address under the auspices of the trustees of the Toner fund; an endowment which one of your most distinguished physicians, Dr. Toner, was prompted by a noble spirit to make for the benefit of mankind, by encouraging efforts for the advancement of medical science.

The only hesitation which I felt in accepting an invitation, at once so honorable and gratifying to myself, was that I might not be able worthily to fulfil its requirements, and I could hardly hope to offer you an address sufficiently attractive in the novelty of its subject-matter. However, trusting to the indulgence of my audience, I will proceed to offer some observations on a subject which has for many years engaged my attention, viz., the principles and recent extension in practice of subcutaneous surgery.

There are a considerable number of surgical operations which owe their immunity from inflammation, and absolute freedom from danger, to the fact of their being performed in such a manner as effectually to exclude the admission of air. These operations are performed by puncture instead of external incision, a very narrow-bladed knife being used, for most

purposes only an eighth of an inch in width. The puncture must always be made at a little distance from the structure to be divided, so that a subcutaneous track exists between the cutaneous puncture and the structure divided. These operations are all governed in their mode of performance, the nature of the reparative process, and their terminations, by the same general law, and may therefore be grouped together and spoken of as subcutaneous surgery.

It must not, however, be assumed that the exclusion of air offers an absolute immunity from inflammation under all circumstances, and independently of the amount of damage done to the deeply seated structures, or of the constitutional condition of the patient.

When the subcutaneous method is applied to the performance of operations of unusual magnitude, such as division of the neck of the thigh-bone, division of the shaft of the femur or humerus, it would be unreasonable to expect the uniformity in favorable results which follow the subcutaneous division of tendons, because the conditions upon which the safety of the subcutaneous method depends, cannot all be with certainty fulfilled.

In these large operations the air may be effectually excluded, but the injury to the deeply seated structures may be excessive, either from cutting or lacerating by the saw; deep-seated suppuration, therefore, will occasionally follow such operations, although the rarity of such a result has astonished every surgeon who has practised such operations. As we recognize the importance of the amount of injury inflicted on the deeply seated structures, in addition to the exclusion of air, it will be obvious that much will depend upon the skill of the operator; and the conditions which must coexist to render the subcutaneous operations exempt from inflammation may be stated to be as follows:—

1. That the knife and other instruments used be of small size.

2. That the operation must be performed quickly and neatly, with decision rather than force, and with as little disturbance to the soft parts as possible.

3. That the wound must be immediately closed, and a compress and bandage applied so as to support the part and prevent the effusion of blood under the skin.

4. That perfect quiescence to the part be insured for three or four days, and the dressing remain undisturbed.

When all these conditions are strictly observed, it matters little whether large muscles, tendons, ligaments, or bones are divided, or even whether the large joints of the body are opened; there is no better established fact in surgical practice than that subcutaneous wounds seldom inflame or suppurate when the above-named conditions are fulfilled.

The influence of the exposure to air upon the reparative process in wounds seems first to have attracted the attention of that distinguished surgeon and physiologist, John Hunter, who, observing the vast difference as to the healing process in wounds exposed to the air and wounds not exposed to the air, was so deeply impressed with the importance of the subject, as to make it the basis of his classification of wounds and injuries. John Hunter, in his "Treatise on the Blood, Inflammation, and Gunshot Wounds," published in the year 1794, points out as a great fundamental principle, in reference to the healing of wounds, the difference between two forms of injuries, of which one is subcutaneous and the other open to the air. He says: "The injuries done to sound parts I shall divide into two sorts, according to the effects of the accident."

"The first kind consist of those in which the injured parts do not communicate externally, as concussions of the whole body or of particular parts, strains, bruises, and simple fractures, either of bone or tendon, which form a large division.

"The second consists of those which have an external

communication; comprehending wounds of all kinds, and compound fractures.

"Bruises which have destroyed the life of the part may be considered as a third kind; partaking, at the beginning, of the nature of the first, but finally terminating like the second.

"The injuries of the first division, in which the parts do not communicate externally, seldom inflame; while those of the second commonly both inflame and suppurate."[1]

Here there is a law of the reparative process in these two great classes of injuries. "In these sentences," observes Sir James Paget, "Hunter has embodied the principle on which is founded the whole practice of subcutaneous surgery; a principle, of which, indeed, it seems hardly possible to exaggerate the importance."[2] It is a remarkable fact that Hunter never applied this law to surgical practice, at least, so far as we are aware; but it is interesting to know that, in the experiments he performed on animals for the purpose of investigating the reparative process in tendons[3] (some of the preparations from which are preserved in the museum of the Royal College of Surgeons), Hunter divided the tendons subcutaneously in some instances, and by open-wound in others, for the sake of comparing the differences in the reparative process. In "The Life of John Hunter," by Drewry Ottley, it is stated that in the year 1767, Hunter ruptured his Achilles tendon, whilst dancing, and this accident led him to examine into the process by which divided tendons are reunited. "He divided the same tendon in several dogs, by introducing a couching-needle under the skin at some distance from it, and killed the dogs at different periods to see the progress of the union, which was found to be similar to that

[1] See "Hunter's Works," by J. F. Palmer, vol. iii. p. 240.

[2] "Lectures on Surgical Pathology," London, 1853.

[3] The Works of Hunter, with notes, by J. F. Palmer, page 34; London, 1837.

fractured bones where the skin is not wounded." The ustrations given by Hunter, in proof of the general law verted to, are sufficiently conclusive. No surgeon, he tells , could have failed to observe the difference between a nple and a compound fracture, in reference to the progress d result of the case. How rarely is a simple fracture llowed by suppurative inflammation, and how seldom does compound fracture unite without suppuration, even when e wound is small and apparently insignificant! Here, then, ɜ have two similar accidents produced in the same way, ' the same amount of mechanical violence; or, it may be at the simple fracture is occasioned by a greater amount of echanical violence than the compound fracture. The only fference is, that an external wound exists in the one case ıd not in the other; yet, how different the results! And ho can suppose that the difference depends upon the additional jury to the soft parts, skin, and cellular tissue—which alone stinguishes the compound from the simple fracture? The ɛceptional cases in which suppuration occurs after simple acture or dislocation are undoubtedly very rare. I have ıly seen three cases of this kind, and in each of them the juries were associated with an unusual amount of deep ruising, and this, I believe, sufficiently explains the occur-ɜnce of suppurative inflammation, the liability to which Hun-ɜr described in the class of bruises, or contused wounds.

Two of these cases were the result of railway accidents; ne a fracture of the humerus, which seemed to progress ıvorably, but suppuration at the seat of fracture occurred, nd the individual died of pyæmia on the tenth day; several bs were also fractured, and he had sustained other injuries.

The other case was one of dislocation of the hip-joint, which 'e were not able to reduce; other injuries éxisted, and I had reviously amputated the opposite leg. The efforts at reduc-on could not be continued in consequence of the sinking ondition of the patient, who, however, survived eight days,

and then it was found that suppuration in the hip-joint had taken place. The third case was also one of fractured humerus in an old gentleman over seventy years of age, a tall and heavy man, a colonel in the Indian army, who fell down a stone staircase. No other important injuries were sustained, but the bruising was extensive, and a large amount of extravasated blood existed at the seat of fracture, where suppuration occurred, and he died from exhaustion; his general condition precluded amputation.

The occurrence of deep bruising by which the vitality of the tissue is seriously impaired, together with the presence of extravasated blood, which, under such circumstances, will sometimes break down, is, I believe, a correct and sufficient explanation of the occurrence of suppuration in these subcutaneous injuries. The suppuration in these cases is clearly independent of the admission of air, and therefore does not admit of explanation by the germ-theory so strongly advocated by Professor Lister of Edinburgh. Professor Lister, indeed, thinks that we should effectually guard against the occasional suppuration which is known to occur after subcutaneous operations, by adopting the antiseptic method, and operating under the carbolic or antiseptic spray. My belief is, however, that the antiseptic principle superadded to the subcutaneous would afford no additional protection, and to me it seems like gilding pure gold. Although I admit the great value of Prof. Lister's antiseptic method, especially when carried out by himself with all the attention to the minutest details which he bestows, and have no hesitation in stating that when in Edinburgh, a year ago, I witnessed a larger number of good results after capital operations, such as amputations, excisions, ligature of arteries, etc., than I have ever seen before under any other treatment, I cannot but think that the only cases at all connected with the class of operations we are now considering, to which it would be applicable,

are those of an imperfectly subcutaneous character, such as a case of osteotomy in which the gimlet and chisel are used, and repeatedly introduced, and reintroduced during a prolonged operation. In this class, additional protection would probably be afforded by the addition of the antiseptic method.

Within the last few months I have been present at two operations for subcutaneous osteotomy, in London, one by Mr. Willett, at St. Bartholomew's Hospital, in which he divided the neck of the femur upon the method recommended by myself; and one by Mr. Croft, at St. Thomas's Hospital, in which he divided the shaft of the femur just below the small trochanter, according to Dr. Gant's method; and the antiseptic method was carefully employed in both these operations, yet deep suppuration occurred in both instances. I have now given a few general illustrations of the subcutaneous law of the reparative process, and have alluded to the exceptional cases in which suppuration occurs, without any fear that the truth of the observations made by Hunter, that subcutaneous wounds seldom inflame, and that wounds exposed to the air commonly both inflame and suppurate, will be doubted by any scientific surgeon.

We now approach another and extremely interesting part of these inquiries in a scientific point of view, viz., the physiology and pathology of the subject in reference first to the *modus operandi* of atmospheric air in the production of inflammation; and second, the differences observed on microscopical examination, in the mode of development of the material effused during the reparative process in subcutaneous and open wounds, corresponding to the differences in the clinical history of these two classes of injuries. The first question is then, how does the air act in exciting inflammation? First, is it merely the presence of the air acting, *quoad air*, by virtue of its chemical constitution—the action of its

oxygen upon the blood and cut surfaces producing chemical changes? Or, second, does the injurious action of the air depend upon the presence of minute organisms floating in it, and when brought into contact with cut surfaces, acting like the yeast-plant in the ordinary process of fermentation, and producing irritation and decomposition of the organic elements of the tissues with which they are brought in contact—in short the so-called germ-theory of putrefaction, fermentation, and disease? Third, is the mere contact of the air with divided surfaces, but without external wound, sufficient to produce inflammation? Or, fourth, is it necessary that the continued exposure to the air which external wounds generally involve, should exist as an essential condition to the production of inflammation?

It would be impossible to enter at length into all the details necessary to the solution of these questions, if indeed they are yet capable of solution; but in reference to the first—I may state in favor of the direct action of the oxygen of the air, and on the authority of the late Dr. Snow, so well known for his early labors on the production of anæsthesia and the action and administration of chloroform and other substances, that, in a course of experiments performed by Jean Ingen Housz, a Dutch physician, in the latter part of the last century, it has been shown, that when a blistered surface is exposed to nitrogen gas, the pain is diminished, when exposed to the atmosphere it is increased, and when exposed to oxygen gas it is still further increased. Being desirous of verifying these experiments, I agreed with Dr. Snow to repeat them, and, on the 27th May, 1857, applied a blister, the size of a half-crown, on the outer side of my left arm, and on the 28th, the experiments were conducted by Dr. Snow, and the subjoined description written out by him from my account of the effects produced by the gases and vapors employed.

May 28, 1857: the cuticle was stripped off from the small blister which had been raised in the arm, and the raw and

inflamed surface was consequently exposed to the air; a sensation of smarting, heat, and pricking was felt. The blistered part was covered with a small glass jar, into which nitrogen gas was introduced from another jar communicating with it by means of a stopcock, and an elastic tube. In two or three minutes the smarting and pricking were removed, a sensation of comfortable warmth was experienced when the attention was directed to it, but at other times, there was hardly any sensation. The nitrogen was applied for twelve minutes, and the relief continued to the end of the application. The nitrogen gas was then displaced by oxygen from another jar. There was a little return of pricking at the moment when the gas was introduced. The oxygen was continued for ten minutes, during which time the pricking and warmth remained. The glass being removed, a current of oxygen was applied from the end of a tube and the part smarted a little more after this. The oxygen was applied again in the jar; it occasioned a sensation of heat to discomfort without smarting or pricking.

After the blister had been exposed for a short time to the common air, hydrogen gas was applied in a jar, in the same manner as the other gases; in the trial, smarting and pricking diminished.

After the blistered surface had been again exposed to the air for a short time, carbonic acid gas was applied. It caused decided increase of smarting, which changed to a sense of heat. In three minutes the smarting was quite gone, and the heat had subsided to a gentle warmth. The above experiments confirm the observations of Ingen Housz. They show that nitrogen, hydrogen, and carbonic acid gases relieve and prevent the smarting which atmospheric air causes on an abraded surface, the last of these gases, however, having an irritant effect in the first instance, before its soothing or narcotic influence is developed. Pure oxygen gas caused more pain than atmospheric air. Although these experiments were per-

formed nearly twenty years ago, I have a very lively recollection of the painful, smarting, pricking, and sensation of heat occasioned by the oxygen gas, and the soothing effect of the carbonic acid gas. The vapor of amyline and also chloroform vapor was afterwards applied. They both irritated and caused a burning and smarting sensation; the chloroform more so than the amyline. When the surface of the sore was touched with the finger after the application of chloroform, distinct sensation was found to be present. The smarting quickly subsided during the application of carbonic acid gas. I have always relied upon the explanation of oxygen and moisture as sufficient to account for the decomposition of animal and vegetable substances exposed to their influence, and therefore have always taken care to avoid as much as possible the exposure of wounds to air and water, and when cut surfaces are necessarily exposed to their influence for some time, as in surgical operations, I always, before closing the wound, wash the surface with some antiseptic lotion—with carbolic acid, one part in forty; or chloride of zinc lotion, one part in forty—which will prevent decomposition of fluids remaining in the wound, the exuded serum, and the water; and this practice I shall always continue to adopt, whether the explanation be purely chemical or upon the germ theory, as it undoubtedly promotes a rapid and healthy reparative process.

With respect to the second question, as to whether the action of the air in producing inflammation is to be explained by the germ-theory, it is certain that amongst our best observers and scientific investigators, much difference of opinion still exists, and it will be long before the germ-theory of putrefactive fermentation in wounds will receive the general support of the profession. Nevertheless, the valuable and numerous experiments performed by Pasteur and Professor Lister on the action of filtered and unfiltered atmospheric air when

brought into contact with organic fluids of vegetable and animal origin, have carried the conviction of the truth of the germ-theory to many minds; and the practical application of it to surgical practice is undoubtedly spreading in the profession, through the untiring zeal and enthusiasm with which Professor Lister endeavors to instruct the profession in all the details and minutiæ which he has found to be necessary to the successful application of his method, both in operating and in the dressing of wounds.

Then with regard to the third question, which relates to the conditions necessary to the irritating influence of the air, it must be admitted that the mere contact of the air with divided surfaces, but without an external wound, is not sufficient to produce inflammation, or, at least, that it seldom does so. Of this we see evidence in ordinary cases of emphysema connected with fractured ribs, in which, as a rule, no inflammation of the cellular tissue follows, though the emphysema may be very extensive.

Abundant evidence of the same fact was supplied by Malgaigne, in the important discussion on the "Subcutaneous Method," as M. Guérin called it, which took place in the "Académie de Médecine" of Paris in the year 1857. M. Malgaigne brought forward a series of experiments on animals, first rendered emphysematous, and then subjected to various subcutaneous operations, so that the air was in contact with the cut surfaces, fractured bones etc.; no inflammation followed.

The explanation which the advocates of the germ-theory would probably give, would be that in emphysema, the extravasated air in contact with fractured bone or cut surfaces has undergone a process of filtration, and that the filtered air deprived of its germs is harmless.

M. Malgaigne came forward as the opponent of the extended

application of the subcutaneous method advocated by M. Guérin,[1] and furnished us with a historical *résumé* of the opinions of the older surgeons who have advocated, as well as of those who have denied, the injurious influence of the air upon the healing of wounds. In this *résumé* are included the most interesting points in the history of subcutaneous operations; but time will not permit me to enter upon this part of our subject.

With respect to the fourth query, as to the necessity of prolonged exposure to the air, as essential to the production of inflammation, there can be no doubt that the prolonged exposure of a wound to the air is invariably followed by inflammation and generally by suppuration, and there can be as little doubt that this was the condition to which Hunter especially referred; whilst, on the other hand, open wounds which are quickly closed proceed as favorably in the reparative process in a large majority of cases, as subcutaneous wounds. Prolonged exposure to air cannot, however, be regarded as an essential condition to the production of inflammation in wounds.

The next subject to which I would direct attention is the pathology, or I might call it the physiological pathology of the reparative process in relation to the subcutaneous method. M. Guérin[2] was undoubtedly the first to call attention to the perfection of the reparative process in subcutaneous operations, and what he called "the immediate organization," *i. e.*, the exudation and development of a reparative material independently of inflammatory products, which is utilized in the regeneration of tissue, such as tendon, nerve, bone, and cellular tissue, in the most perfect manner.

We see the reparative process in wounds, under various conditions, proceeding with or without inflammation. The

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[1] Bulletin de l'Académie Impériale de Médecine, vol. xxii. pp. 427-724, 1857.

[2] Essais sur la méthode sous-cutanie; Paris, 1841.

relation of the reparative process to that of inflammation has been most carefully studied by Sir James Paget, whose investigations, both experimental and clinical, concerning the general pathology of the reparative process in all its phases, are well known. It may, at the present time, be regarded as an established doctrine, deduced directly from pathological and clinical observation, that the reparative process in wounds, the result either of accident or surgical operations, is more perfect in proportion to the absence of inflammation, and that the danger arising from wounds very much depends upon the extent of the inflammatory complications.

Microscopical examination of the material effused during the reparative process, in the two great classes of wounds—viz., the open and the subcutaneous—has confirmed the accuracy of the law, which expresses the difference in the mode of development—perhaps indicating differences in the nature of the material effused for the purpose of repair in these two classes of wounds. The observation of this fact is due to Sir James Paget, who states "that the materials produced for the repair of open wounds are not usually the same, or, at least, do not develop themselves in the same manner as those for the repair of closed or subcutaneous ones."[1] The general truth appears to be that the material of repair, for subcutaneous wounds of the soft parts, is developed through the formation of nucleated blastema; while that for repair by primary adhesion and by granulation, is developed through nucleated cells.

I need only observe that the process of development through large nucleated cells, which gradually elongate and form delicate filaments, is the process by which cellular adhesions are formed from inflammatory lymph as in inflammation of serous membranes etc., and by which granulation and cicatrization

[1] Lectures on Surgical Pathology, vol. i. p. 172.

take place in open wounds. When inflammation exists, therefore, this mode of development is always found, and it appears to be a less perfect process of healing than that accomplished through *nucleated blastema*, a material which Sir James Paget proposed to distinguish by the name of *reparative lymph*. In this material small oval and elongated nuclei are formed, which are easily rendered distinct by acetic acid, but the large nucleated cells do not appear. The ultimate disposition of these nuclei is uncertain; Sir James Paget thinks they shrivel and disappear; but Henle describes them as developing into fibres, and with this view I am disposed to agree, from my own observation in numerous experiments which I have performed on rabbits.[1]

The *nucleated blastema* is the material from which bonds of connection are formed after subcutaneous operations; divided tendons and muscles are thus connected. The process of development through *nucleated blastema* is found proceeding in all subcutaneous operations, in proportion to the absence of inflammation. When inflammation takes place in subcutaneous operations, the two processes may coexist, and their products mingle, but Sir James Paget observes "they bear an inverse proportion to each other, and the more manifest the signs of inflammation, the less the quantity of the proper reparative material and the slower in the end the process of repair."

Having thus shown that the reparative process after subcutaneous operations, proceeds more perfectly than that after open wounds, in the formation of a connecting bond of union between the divided structure, and to the perfect regeneration of structure where this is possible, as in tendons, bones, nerves, and cellular tissue, we can understand the importance attached

[1] See Trans. Path. Soc., vol. vi., for account of "a series of experiments illustrating the reparative process in the tendons of rabbits after division by subcutaneous and open wounds, read May 1, 1855; and also a work "On the Reparative Process in Human Tendons," by W. Adams, p. 87. J. Churchill, London, 1860.

by M. Guérin to what he describes as the "immediate organization."

The subcutaneous law in its full breadth and practical significance was more fully recognized by M. Guérin than by any other authority, and it is undoubtedly to him that we owe the first attempt to bring together in one group the facts observed in subcutaneous injuries and subcutaneous operations, and generalizing from the facts presented, to show that, for the immunity from inflammation which they enjoy, and the perfection of the reparative process, such wounds especially depend upon the same general law. Although I refuse to admit M. Guérin's claim to originality in the discovery of the subcutaneous law, which is purely Hunterian, there can be no doubt that for its development and surgical application we are principally indebted to the labors of M. Guérin.

If time permitted, it would be interesting here to pass in review, perhaps in chronological order, the surgical operations performed on the subcutaneous principle, but they are too numerous to admit of this, and I will, therefore, merely refer to the more important and familiar examples, such as subcutaneous tenotomy, the subcutaneous operations for the removal of loose cartilages from the knee-joint; a large number of operations in ophthalmic surgery; the subcutaneous operation for the radical cure of hernia, as well as those for ununited fracture, varicose veins, nævi, and also for the obliteration of depressed cicatrices; the subcutaneous method of opening abscesses and cystic tumors; the subcutaneous division of stricture; and also several operations of a more or less perfectly subcutaneous character, which have been performed in cases of anchylosis of the hip, knee, and elbow-joints, in severe rachitic distortion of the tibia, in severe knock-knee, and some other analogous affections. The last mentioned operations are collectively spoken of as subcutaneous osteotomy, and with very few exceptions they have proved to be as safe as subcutaneous tenotomy.

SMITHSONIAN MISCELLANEOUS COLLECTIONS.
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LIST

OF

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OF THE

SMITHSONIAN INSTITUTION.

CORRECTED TO JANUARY, 1878.

[FIFTH EDITION.]

RADCLIFFE

WASHINGTON:
SMITHSONIAN INSTITUTION.
MARCH, 1878.

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JOSEPH HENRY,
Secretary S. I.

SMITHSONIAN INSTITUTION,
WASHINGTON, January, 1878.

PHILADELPHIA:
COLLINS, PRINTER.

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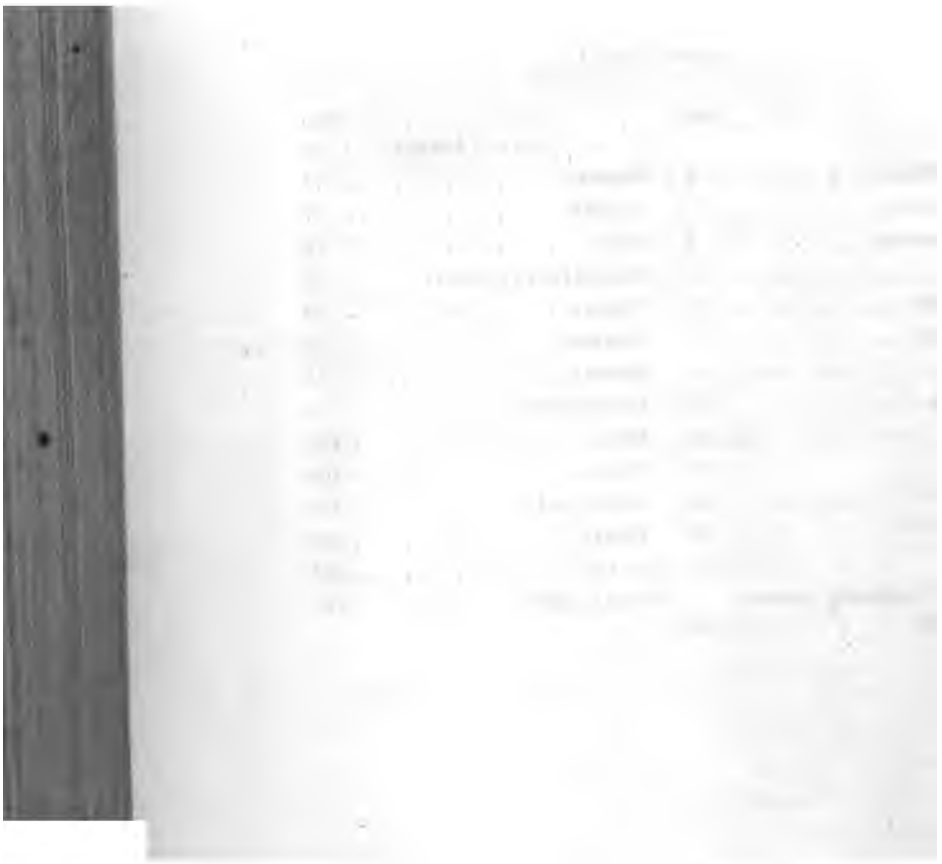

LIST

OF

FOREIGN CORRESPONDENTS.

AFRICA.

ALGERIA.

Algiers—Bibliothèque de la Ville d'Alger (*City Library*).
École de Médecine et de Pharmacie d'Alger (Université de France) (*School of Medicine and Pharmacy*).
Observatoire National d'Alger (*National Observatory*).
Société d'Agriculture d'Alger (*Agricultural Society*).
Société Algérienne de Climatologie, Sciences, Physiques et Naturelles (*Meteorological, Physical, and Natural History Society*).

Constantine—Société Archéologique de la Province de Constantine (*Archæological Society*).

CAPE COLONY.

Cape Town—(*Cape of Good Hope*)—Agricultural Society.
Gill College, Somerset East.
Royal Observatory.
South African Museum.
South Africa Public Library.

St. Helena—Magnetic and Meteorological Observatory.
St. Helena Library.

EGYPT.

Alexandria—Institut Égyptienne (*Institute of Egypt*).
Société Khédiviale de Géographie (*Geographical Society*).

Cairo—The Khedive of Egypt.
Bibliothèque Centrale (*Central Library*).
Bureau Central de Statistique (*Central Statistical Bureau*).
Egyptian Society.
Musée de Boulaq (*Museum of Boulaq*).
Observatoire Khédivial (*Observatory*).

LIBERIA.

Monrovia—Government Library.

MAURITIUS.

Pamplemouses—Meteorological Observatory.

Port Louis—Meteorological Society of Mauritius.
Royal Society of Arts and Sciences.

NORTH AMERICA.

BRITISH AMERICA.

CANADA.

Montreal (*Quebec*)—Department of Public Instruction.
Geological Survey of Canada.
McGill College.
Natural History Society.
Numismatic and Antiquarian Society.
Société Historique de Montreal.
Legislative Library of the Province of Quebec.

Quebec (*Quebec*)—Literary and Historical Society.
Université-Laval.

Ottowa (*Ontario*)—Library of Parliament.

Toronto (*Ontario*)—Canadian Institute.
Entomological Society of Ontario.
Fruit-Growers' Association of Ontario.
Magnetical Observatory.
Meteorological Office of the Dominion of Canada.
University College.

NEW BRUNSWICK.

Fredericton—University of New Brunswick.

NEWFOUNDLAND.

St. John's—Geological Survey of Newfoundland.

NOVA SCOTIA.

Halifax—Department of Mines
Nova Scotian Institute of Natural Sciences.

CENTRAL AMERICA.

COSTA RICA.

San José—University of Costa Rica.

GUATEMALA.

Guatemala—Sociedad Economica de Amigos del Pais (*Economical Society*).

MEXICO.

Mexico (*Mexico*)—Academia de Médicina (*Academy of Medicine*).
Asociacion Medico Quirurgica "Larrey." (*Medico-Chirurgical Society*).
Colegio de Mineria (*School of Mines*).
El Museo Nacional (*National Museum*).
Escuela de Agricultura (*Agricultural College*).
Mexican Government.
Ministerio de Fomento, Colonizacion, Industria y Comercio (*Department of Industry and Commerce*).
Sociedad Filoiatrica y de Beneficencia de los Alumnos de la Escuela de Medicina (*Alumni Society of the Medical College*).
Sociedad Humboldt (*Humboldt Society*).
Sociedad Médica (*Medical Society*).
Sociedad Mexicana de Geografia y Estadistica (*Society of Geography and Statistics*).
Sociedad Mexicana de Historia Natural (*Society of Natural History*).
Sociedad Minera Mexicana (*Mineralogical Society*).

Guadalajara—Sociedad Medica de Guadalajara (*Medical Society*).

Guanajuata—Colegio de Guanajuata (*College*).

Toluca—Instituto Literario del Estado de Mexico (*Literary Institute*).

WEST INDIES.

CUBA.

Habana (*Havana*)—Academia de Ciencias Médicas Físicas y Naturales de la Habana (*Academy of Medical, Physical, and Natural Sciences*).

Inspeccion General de Telegrafos (*Inspector-General of Telegraphs*).

Observatorio Magnético y Meteorológico del Real Colegio de Belen (*Magnetic and Meteorological Observatory*).

Real Observatorio Físico-Meteorológico de la Habana (*Physico-Meteorological Observatory*).

Real Sociedad Económica de la Habana (*Economical Society*).

Real Universidad de la Habana (*University*).

JAMAICA.

Kingston—Royal Society of Arts of Jamaica.

TRINIDAD.

Port of Spain—Scientific Association of Trinidad.

SOUTH AMERICA.

ARGENTINE REPUBLIC.

Buenos Aires—Académie des Sciences (*Academy of Sciences*).
Asociacion Médica Bonaereusé (*Medical Association*).
Biblioteca Nacional (*National Library*).
Biblioteca Pública (*Public Library*).
Instituto Histórico Geográfico del Rio de la Plata (*Historical and Geographical Institute*).
Museo Publico de Buenos Aires (*Public Museum*).
Sociedad Paleontológica de Buenos Aires (*Palæontological Society*).
Sociedad Rural Argentina (*Agricultural Society*).
Sociedad Zoológica Argentina (*Zoological Society*).
Statistical Bureau.
Universidad de Buenos Aires (*University*).

Cordoba—Academia Nacional de Ciencias Exactes (*National Academy of Sciences*).
Argentine Meteorological Office.
Observatorio Nacional Argentino (*National Observatory*).

BOLIVIA.

Chuquisaca—University.

BRAZIL.

Rio Janeiro—Emperor of Brazil.
British Library.
Geological Commission.
Government of Brazil.
Historical, Geographical, and Ethnographical Institute.
National Museum.
Nautical Observatory.
Palaestra Scientific Society.
Royal Geographical Society.
Auxiliary Society of National Industry.

BRITISH GUIANA.

Georgetown—Observatory.
Queen's College.
Royal Agricultural and Commercial Society.

CHILE.

Santiago—Academia Militar (*Military Academy*).
Biblioteca Nacional (*National Library*).
El Plano Topográfico (*Topographical Bureau*).
Ministro de Instruccion Publica (*Minister of Public Instruction*).
Museo Nacional (*National Museum*).
Observatorio Nacional de Santiago (*National Observatory*).
Sociedad de Historia Natural (*Society of Natural History*).
Universidad de Chile (*University of Chile*).

COLOMBIA.

Bogota—Republic of Colombia.
Sociedad de Naturalistas Columbianos (*Society of Naturalists*).
Medellin (*Antioquia*)—University of Antioquia.

DUTCH GUIANA.

Paramaribo (*Surinam*)—Surinaamsche Koloniale Bibliotheek (*Colonial Library*).

ECUADOR.

Quito—Observatorio del Colegio Nacional (*National Observatory*).

PERU.

Lima—Cuerpo de Ingenieras del Perú (*Bureau of Engineers*).
National Library.
Statistical Bureau.
Universidad (*University*).

VENEZUELA.

Caracas—Sociedad de Ciencias Físicas y Naturales de Caracas (*Society of Physical and Natural Sciences*).
Sociedad Economica de Amigos del Pais (*Economical Society*).

ASIA.

CHINA.

Shanghai—Royal Asiatic Society of China (North China Branch).

INDIA.

Allahabad—Mission College.

Batticotta (*Ceylon*)—Jaffna College.

Benares—Sanscrit College.

Bombay—Bombay Government.
- Bombay University.
- Geographical Society.
- Government Central Museum.
- Magnetical and Meteorological Observatory.
- Royal Asiatic Society (Bombay Branch).
- Sassoon Mechanics' Institute.
- Sir Jamsedji Jijibhai Translation Fund.

Calcutta—Asiatic Society of Bengal.
- Agricultural and Horticultural Society of India.
- Geological Survey of India.
- Government of Bengal.
- Indian Medical Gazette.
- Indian Museum.
- Medical and Physical Society.
- Meteorological Office.

Colombo—Royal Asiatic Society (Ceylon Branch).

Dehra Doon—Great Trigonometrical Survey of India.

Goa—Escola Medico-Cirurgica (*Medical-Chirurgical School*).

Kurrachee—General Library and Museum

Madras—Government Central Museum.
- Literary Society.
- Madras Observatory.

Neilgherries—Public Library.

Rourkee—Thomason College of Civil Engineering.

Trevandrum—Trevandrum Museum.
Trevandrum Observatory.

JAPAN.

Tokio—Tokio Kaisei-Gakko (*Imperial University of Tokio*).
Tokio Library.

Yedo—Emperor of Japan.
Deutsche Gesellschaft für Natur und Völkerkunde Ost-Asien's (*German Society of Natural History and Ethnology of Eastern Asia*).
Imperial Japanese University.

Yokohama—Asiatic Society of Japan.

JAVA.

Batavia—Bataviaasch Genootschap van Kunsten en Wetenschappen (*Academy of Arts and Sciences*).
Geneeskundige Vereeniging in Nederlandsch-Indië (*Medical Association*).
Koninlijke Naturkundige Vereeniging in Nederlandsch-Indië (*Natural History Society*).
Magnetical and Meteorological Observatory (*Magnetical and Meteorological Observatory*).
Nederlandsch-Indische Maatschappij van Nijverheid en Landbouw (*Industrial Society*).

PHILIPPINE ISLANDS.

Manila—Horto Botanico Manilensis (*Botanical Garden*).
Observatorio Meteorologico del Ateneo Municipal (*Meteorological Observatory*).
Royal Economical Society of the Philippine Islands (*Economical Society*).

AUSTRALASIA.

AUSTRALIA.

NEW SOUTH WALES.

Sydney—Agricultural Society of New South Wales.
Australian Museum.
Government Observatory.
Linnean Society of New South Wales.
New South Wales Government.
Philosophical Society of New South Wales.
Royal Society of New South Wales.
University of Sydney.

Windsor—Private Observatory of John Tebbutt.

QUEENSLAND.

Brisbane—Government Meteorological Observatory.

SOUTH AUSTRALIA.

Adelaide—Adelaide Philosophical Society.
Astronomical Observatory.
Government of South Australia.
North Adelaide Educational Institution.
Parliamentary Library.

VICTORIA.

Emerald Hill—Mechanics' Institute.

Melbourne—Australian Government.
Botanical Garden.
Melbourne Observatory.
Mining Department.
National Museum of Victoria.
Natural History Society.
Public Library.
Royal Society of Victoria.
University of Melbourne.
Zoological and Acclimatization Society of Victoria.

NEW ZEALAND.

Auckland—Auckland Institute.
U. S. Consul.

Christchurch—Canterbury Museum.
Geological Survey of the Province of Canterbury.
Philosophical Institute of Canterbury.

Dunedin (*Otago*)—Otago Institute.
Otago Museum.

Nelson—Nelson Association for the Promotion of Science and Industry.
Nelson Institute.

Wellington—Colonial Museum and Geological Survey Department.
Government of New Zealand.
New Zealand Institute.
Parliamentary Library.
Wellington Philosophical Society.
Westland Naturalists' and Acclimatization Society.

TASMANIA.

Hobarton—Magnetic and Meteorological Observatory.
Mechanics' Institute.
Royal Society of Tasmania.
Tasmanian Public Library.

Launceston—Launceston Public Library.
Mechanics' Institute and School of Arts.

EUROPE.

BELGIUM.

nvers (*Antwerp*)—Académie d'Archéologie de Belgique (*Academy of Archæology of Belgium*).
Académie Royale des Beaux-Arts (*Royal Academy of Fine Arts*).
Bibliothèque Publique de la Ville (*Public Library of the City*).
Cercle Artistique, Littéraire et Scientifique d'Anvers (*Artistic, Literary, and Scientific Society*).
Société Belge de Géographie (*Geographical Society*).
Société de Médecine (*Medical Society*).
Société "de Olyftak" (*Society of "Olyftak"*).
Société de Pharmacie (*Pharmaceutical Society*).
Société de Vlaemsche Vrienden (*Society of Vlaemsche Vrienden*).
Société Royale pour l'Encouragement des Beaux-Arts (*Royal Society for the Encouragement of the Fine Arts*).
Société Royale d'Horticulture et d'Agriculture (*Royal Society of Horticulture and Agriculture*).
Société Royale de Zoologie (*Royal Zoological Society*).

rlon—Bibliothèque Publique (*Public Library*).

th—Bibliothèque Publique (*Public Library*).

udenarde—Bibliothèque Publique (*Public Library*).

ruges—Administration Communale de Bruges (*City Government*).
Bibliothèque Publique (*Public Library*).
Cercle Artistique et Littéraire (*Artistic and Literary Circle*).
Société d'Emulation pour l'étude de l'Histoire et des Antiquités de la Flandre (*Society for studying the History and Antiquities of Flanders*).
Société pour l'Encouragement des Beaux-Arts et de la Littérature (*Society for the Promotion of the Fine Arts and Literature*).
Société d'Horticulture et de la Botanique (*Society of Horticulture and Botany*).
Société Médico-chirurgicale de Bruges (*Medico-Chirurgical Society of Bruges*).

Bruxelles (*Brussels*)—Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique (*Royal Academy of Sciences, Letters, and Fine Arts of Belgium*).

Bibliothèque de la Chambre des Représentants (*Library of the House of Representatives*).

Bibliothèque Royale de Belgique (*Royal Library of Belgium*).

Bibliothèque de l'Université (*Library of the University*).

Cercle Artistique et Littéraire (*Artistic and Literary Circle*).

Commission Administrative du Musée Royale de l'Industrie (*Administrative Commission of the Royal Museum of Manufactures, etc*).

Commission des Annales des Travaux Publiques (*Commission of Public Works*).

Commission Centrale de Statistique (*Central Commission of Statistics*).

Commission Royale d'Histoire (*Royal Commission of History*).

Établissement Géographique de Bruxelles (*Geographic Establishment of Brussels*).

Fédération des Sociétés d'Horticulture de Belgique (*Confederation of the Horticultural Societies of Belgium*).

Government of Belgium.

Musée Royal d'Antiquités, d'Armures et d'Artillerie (*Royal Museum of Antiquities, Armor, and Ordnance*).

Musée Royal d'Histoire Naturelle (*Royal Museum of Natural History*).

Observatoire Royal (*Royal Observatory*).

Société Anatomo-pathologique de Bruxelles (*Anatomo-Pathological Society of Brussels*).

Société Belge de Geographie (*Belgic Geographical Society*).

Société Belge de Médecine Homœopathique (*Belgic Society of Homœopathic Medical Science*).

Société Centrale d'Agriculture de Belgique (*Central Agricultural Society*).

Société Centrale des Instituteurs Belges (*Central Association of Belgian Teachers*).

Société pour l'Encouragement des Arts Industriels (*Society for the Promotion of Industrial Arts*).

Société Entomologique de Belgique (*Entomological Society of Belgium*).

Société de l'Histoire de Belgique (*Historical Society of Belgium*).

Société Malacologique de Belgique (*Malacological Society of Belgium*).

Société Royale de Numismatique Belge (*Royal Numismatic Society of Belgium*).
Société Royale de Pharmacie de Bruxelles (*Royal Society of Pharmacy of Brussels*).
Société Royale de Botanique de Belgique (*Royal Society of Botany of Belgium*).
Société Royale de Flore (*Royal Society of Flora*).
Société Royale d'Horticulture (*Royal Horticultural Society*).
Société Royale Linnéenne de Bruxelles (*Royal Linnean Society of Brussels*).
Société Royale protectrice des Animaux (*Royal Society for the Protection of Animals*).
Société Royale de Zoologie, d'Horticulture et d'Ornement (*Royal Society of Zoology, Horticulture, and Ornamental Arts*).
Société Royale des Sciences Médicales et Naturelles (*Royal Society of Medical and Natural Sciences*).
Société Vésalienne (*Vesalienne Society*).

Charleroi—Bibliothèque Publique (*Public Library*).
Société Paléontologique et Archéologique de l'Arrondissement (*Palæontological and Archæological Society of the District*).

Courtray—Bibliothèque Publique (*Public Library*).

Furnes—Bibliothèque Publique (*Public Library*).

Gand (*Ghent*)—Administration de la Revue et des Archives de Droit International et de Législation comparée (*Administration of the Revisal and Records of International Law and Comparative Legislation*).
Maatschappij van Nederlandsche Letterkunde en Geschiedenis (*Society of the Literature and History of Netherlands*).
Société d'Histoire Naturelle (*Society of Natural History*).
Société de Médecine (*Medical Society*).
Société Royale d'Agriculture et de Botanique (*Royal Society of Agriculture and Botany*).
Société Royale des Beaux-Arts et de Littérature (*Royal Society of Fine Arts and Literature*).
Société de Vlaemsche (*Society of Flemings*).
Société: Het Willems fonds (*Willems-fund* [*Philological*] *Society*).

Hasselt—Bibliothèque Communale (*City Library*).
Bibliothèque Publique (*Public Library*).

Liége—Association des Ingenieurs sortis de l'École de Liége (*Association of Engineers of the School of Liege*).
Comité du Cercle Industriel (*Committee of the Industrial Circle*).
Conseil de Salubrité publique de la Province de Liége (*Board of Public Health of the Province of Liege*).
Institut Archéologique Liégeois (*Archæological Institute of Liege*).
Société Géologique de Belgique (*Geological Society of Belgium*).
Société libre d'Emulation pour l'Encouragement des Lettres, Sciences, et Beaux-Arts (*Free Emulative Society for the Promotion of Letters, Sciences, and the Fine Arts*).
Société Liégeois de Littérature Wallonne (*Liege Society of Walloon Literature*).
Société de Médecine (*Medical Society*).
Société Royale d'Horticulture (*Royal Horticultural Society*).
Société Royale des Sciences (*Royal Society of Sciences*).
Société des Sciences Naturelles (*Society of Natural Sciences*).
Université de l'État (*University*).

Lokeren—Bibliothèque Publique (*Public Library*).

Louvain—Bibliothèque Publique (*Public Library*).
Société Littéraire de l'Université Catholique (*Literary Society of the Catholic University*).
Université Catholique (*Catholic University*).
Studenten-Genootschap der Katholicke Hooge-School met Tijd en Vlijt (*Society of Students of the Catholic High School*).

Melle (*near Gand*)—Commercial and Industrial Museum.

Mons—Bibliothèque Publique (*Public Library*).
Cercle Archéologique (*Archæological Circle*).
Société des Anciens Elèves de l'École des Mines du Hainaut (*Society of Former Pupils of the School of Mines of Hainaut*).
Société des Bibliophiles Belges (*Society of Belgian Bibliophilists*).
Société des Sciences, des Arts et des Lettres du Hainaut (*Society of Sciences, Arts, and Letters of Hainaut*).

Namur—Bibliothèque Publique (*Public Library*).
Cercle Artistique et Littéraire (*Artistic and Literary Circle*).
Société Agricole et Forestière de la Province de Namur (*Society of Agriculture and Forestry of the Province of Namur*).
Société Archéologique (*Archæological Society*).

Ostende—Bibliothèque Publique (*Public Library*).

St. Nicolas—Bibliothèque Publique (*Public Library*).

Cercle Archéologique du Pays de Waes (*Archæological Circle of the Country of Waas*).

Termonde—Bibliothèque Publique (*Public Library*).

Cercle Archéologique de la Ville et de l'Ancien Pays de Termonde (*Archæological Circle of the City and the Ancient Territory of Termonde*).

Tirlemont—Bibliothèque Publique (*Public Library*).

Tongres—Société Scientifique et Littéraire du Limbourg (*Literary and Scientific Society of Limbourg*).

Tournai—Bibliothèque Publique (*Public Library*).

Société Historique et Littéraire de Tournai (*Historical and Literary Society*).

Société Royale d'Horticulture et d'Agriculture de Tournai (*Royal Society of Horticulture and Agriculture*).

Verviers—Bibliothèque Publique (*Public Library*).

Chambre de Commerce de Verviers (*Chamber of Commerce*).

Société Industrielle et Commerciale (*Industrial and Commercial Society*).

Ypres—Bibliothèque Publique (*Public Library*).

Société Historique, Archéologique et Littéraire de la Ville d'Ypres et de l'ancienne West-Flandre (*Historical, Archæological, and Literary Society of the City of Ypres and Old West Flanders*).

DENMARK.

Kjöbenhavn (*Copenhagen*)—Botaniske Forening (*Botanical Society*).
Danske Meteorologiske Institut (*Danish Meteorological Institute*).
Historisk Tidsskrift (*Historical Journal*).
Islandske Litterœre Selskab (*Icelandic Literary Society*).
Kongelige Bibliothek (*Royal Library*).
Kongelige Danske Selskab for Fædrelandets Historie og Sprog (*Royal Danish Society of National History and Language*).
Kongelige Danske Videnskabernes Selskab (*Royal Danish Society of Science*).
Kongelige Geheime-Archiv (*Royal Court of Records*).
Kongelige Landhuusholdnings-Selskab (*Royal Society of Rural Economy*).
Kongelige Medicinske Selskab (*Royal Medical Society*).
Kongelige Nordiske Oldskrift-Selskab (*Royal Society of Northern Antiquaries*).
Kongelige Statistiske Bureau (*Royal Statistical Bureau*).
Kongelige Veterinair- og Landbohöiskole (*Royal Veterinary and Agricultural School*).
Naturhistoriske Forening (*Natural History Society*).
Naturhistorisk Tidsskrift (*Journal of Natural History*).
Nordisk Tidsskrift for Fiskeri (*Journal of Fisheries*).
Polytekniske Leereanstalt (*Polytechnic School.*)
Samfundet til den Danske Literaturs Fremme (*Society for the Advancement of Danish Literature*).
Sökaart-Archivet (*Hydrographic Office*).
Tidsskrift for Philologi og Pœdagogik (*Philological Journal*).
Tidsskrift for populære Fremstillinger af Natur-Videnskaberne (*Journal for Popular Natural Science*).
Tidsskrift for Veterinairer (*Veterinary Journal*).
Universitetets Astronomiske Observatorium (*Astronomical Observatory of the University*).
Universitets-Bibliotheket (*Library of the University*).
Universitetets Botaniske Have (*Botanical Garden of the University*).
Universitetets Mineralogiske Museum (*Mineralogical Museum of the University*).
Universitetets Zoologiske Museum (*Zoological Museum of the University*).
Veterinær-Selskab (*Veterinary Society*).

FRANCE.

ssociation Française pour l'Avancement des Sciences (*French Association for the Advancement of Sciences*).

ssociation Scientifique de France (*Scientific Association of France*).

ɔngrès Scientifique de France (*Scientific Congress of France*).

ıstitut des Provinces de France (*Institute of the Provinces of France*).

bbeville—Société d'Emulation (*Emulative Society*).

Société Linnéenne du Nord du France (*Linnean Society of the North of France*).

gen—Société d'Agriculture, Sciences et Arts d'Agen (*Society of Agriculture, Sciences and Arts*).

ix (*Bouches du Rhône*)—Académie des Sciences, Agriculture, Arts et Belles-Lettres (*Academy of Sciences, Agriculture, Arts, and Belles-Lettres*).

lais—Société Scientifique et Littéraire d'Alais (*Scientific and Literary Society*).

miens—Académie des Sciences, Belles-Lettres, Arts, Agriculture et Commerce du Département de la Somme (*Academy of Sciences, Belles-Lettres, Arts, Agriculture, and Commerce*).

Bibliothèque Communale de la Ville d'Amiens (*City Library*).

Société des Antiquaires de Picardie (*Society of Antiquaries*).

Société d'Horticulture de Picardie (*Horticultural Society*).

Société Linnéenne du Nord de la France (*Linnean Society of the North of France*).

ngers—Société Académique de Maine-et-Loire (*Academic Society of Maine-et-Loire*).

Société Industrielle et Agricole (*Industrial and Agricultural Society*).

Société d'Études Scientifiques (*Society of Scientific Studies*).

Société Linnéenne du Département de Maine-et-Loire (*Linnean Society of the Department of Maine et-Loire*).

Société Nationale d'Agriculture, Sciences et Arts (*National Society of Agriculture, Sciences, and Arts*).

Angoulème—Société d'Agriculture, Arts et Commerce du Dép. de la Charente (*Society of Agriculture, Arts, and Commerce of the Department of Charente*).

Société Archéologique de la Charente (*Archæological Society of Charente*).

Annecy—Société Florimontane (*Florimontane Society*).

Apt—Société Litteraire, Scientifique et Artistique d'Apt (*Literary, Scientific, and Artistic Society*).

Arles—Commission Archéologique (*Archæological Commission*).

Arras—Académie des Sciences, Lettres et Arts d'Arras (*Academy of Sciences, Letters, and Arts*).

Aurillac—Société Académique (*Academic Society*).

Auxerre—Société des Sciences historiques et naturelles de l'Yonne (*Society of Historical and Natural Sciences of Yonne*).

Avignon—Société Archéologique (*Archæological Society*).

Avranches—Société d'Archéologie, Littérature, Sciences et Arts d'Avranches (*Society of Archæology, Literature, Sciences, and Arts*).

Bagnères de Bigorre—Société Ramond (*Ramond Society*).

Bar-le-Duc—Société des Lettres, Sciences et Arts de Bar-le-Duc (*Society of Sciences, Letters, and Arts*).

Société du Musée (*Society of the Museum*).

Bayeux—Société d'Agriculture, Sciences, Arts et Belles-Lettres (*Society of Agriculture, Sciences, Arts, and Belles-Lettres*).

Beauvais—Société Académique d'Archéologie, Sciences et Arts du Département de l'Oise (*Academic Society of Archæology, Science, and Arts of the Department of Oise*).

Bergues—Société de la Histoire et des Beaux-Arts de la Flandre Maritime (*Society of History and Fine Arts of Maritime Flanders*).

Besançon—Académie des Sciences, Belles-Lettres et Arts (*Academy of Sciences, Belles-Lettres, and Arts*).

Société d'Emulation du Doubs (*Competitive Society of Doubs*).

Béziers (*Hérault*)—Société Archéologique (*Archæological Society*).

Blois—Société des Sciences et Lettres de Loir-et-Cher (*Society of Sciences and Letters of Loir-et-Cher*).

Bordeaux—Académie Ethnographique de la Gironde (*Ethnographic Academy of Gironde*).

Académie des Sciences, Belles-Lettres et Arts (*Academy of Sciences, Belles-Lettres, and Arts*)

Bibliothèque de la Ville de Bordeaux (*Library of the City*).

Chambre de Commerce (*Chamber of Commerce*).

Commission des Monuments et Documents historiques et des Batiments civils (*Commission of Monuments, Historical Documents, and Public Structures*).

Institut Confucius de France (*Confucius Institute of France*).

Muséum d'Histoire Naturelle (*Museum of Natural History*).

Société d'Agriculture de la Gironde (*Agricultural Society of Gironde*).

Société de Geographie Commerciale (*Society of Commercial Geography*).

Société d'Horticulture de la Gironde (*Horticultural Society of Gironde*).

Société Humanitaire et Scientifique de Sud-Ouest de la France (*Humanitarian and Scientific Society of the Southwest of France*).

Société Linnéenne de Bordeaux (*Linnean Society of Bordeaux*).

Société de Médecine et de Chirurgie de Bordeaux (*Medical and Chirurgical Society*).

Société Medico-Chirurgicale des Hôpitaux et Hospices de Bordeaux (*Medico-Chirurgical Society of Hospitals and Almshouses*).

Société Philomathique de Bordeaux (*Philomathic Society*).

Société des Sciences Physiques et Naturelles (*Society of Physical and Natural Sciences*).

Boulogne—Société Académique (*Academic Society*).

Société d'Agriculture, Sciences et Arts de Boulogne-sur-Mer (*Society of Agriculture, Sciences, and Arts of Boulogne-sur-Mer*).

Bourg—Société d'Emulation de l'Ain (*Emulative Society of Ain*).

Bourges—Commission Historique du Cher (*Historical Commission of Cher*).

Société d'Agriculture du Département du Cher (*Agricultural Society of the Department of Cher*).

Brest—Bibliothèque de la Marine Impériale (*Library of the Imperial Navy*).

Société Académique de Brest (*Academic Society*).

Société d'Agriculture de Brest (*Agricultural Society*).

Caen—Académie des Sciences, Arts et Belles-Lettres (*Academy of Sciences, Arts, and Belles-Lettres*).

Société d'Agriculture et de Commerce de Caen (*Society of Agriculture and of Commerce*).

Société des Antiquaires de Normandie (*Society of Antiquaries of Normandy*).

Société Linnéenne de Normandie (*Linnean Society of Normandy*).

Société de Médecine de Caen (*Medical Society*).

Cambrai—Société d'Emulation (*Competitive Society*).

Cannes—Société des Sciences Naturelles, des Lettres et des Beaux-Arts de Cannes et de l'Arrondissement de Grasse (*Society of Natural Sciences, Letters, and Fine Arts of Cannes and the Arrondissemeat of Grasse*).

Castres—Société Scientifique et Littéraire de Castres (*Scientific and Literary Society*).

Châlons-sur-Marne—Société d'Agriculture, Commerce et Sciences de la Marne (*Society of Agriculture, Commerce, and Sciences of the Marne*).

Châlons-sur-Saône—Société Archéologique de Châlons (*Archæological Society*).

Chambéry—Académie Nationale de Savoie (*National Academy of Savoy*).

Chartres—Société Archéologique d'Eure et Loire (*Archæological Society of Eure et Loire*).

Société d'Horticulture et de Viticulture d'Eure et Loire (*Society of Horticulture and Vine Culture of Eure et Loire*).

Chateaudun—Société Dunoise (*Dunoise Society*).

Chateauroux—Société d'Agriculture de l'Indre (*Agricultural Society of Indre*).

Société Pharmaceutique de l'Indre (*Pharmaceutic Society of Indre*)

Chateau-Thierry—Société Historique et Archéologique de Chateau-Thierry (*Historical and Archæological Society*).

Chauny—Société de Pomologie et d'Arboriculture de Chauny (*Pomological and Arboricultural Society*).

Société Régionale d'Horticulture dont Chauny est le centre (*District Society of Horticulture having its centre in Chauny*).

Cherbourg—Société Académique de Cherbourg (*Academic Society*).
Société Nationale des Sciences Naturelles de Cherbourg (*National Society of Natural Sciences*).

Clermont—Société d'Agriculture de Clermont-Oise (*Society of Agriculture of Clermont-Oise*).
Société d'Horticulture de Clermont-Oise (*Society of Horticulture of Clermont-Oise*).

Clermont-Ferrand—Académie des Sciences, Belles-Lettres et Arts (*Academy of Sciences, Belles-Lettres, and Arts*).

Compeigne—Musée Kohmer de Compeigne (*Kohmer Museum of Compeigne*).

Coulommiers—Société d'Horticulture de l'Arrondissement de Coulommiers (*Horticultural Society of the Arrondissement of Coulommiers*).

Dijon—Académie des Sciences, Arts et Belles-Lettres de Dijon (*Academy of Sciences, Arts, and Belles-Lettres*).
Commission Archéologique de la Côte d'Or (*Archæological Commission of Côte d'Or*).
Société d'Agriculture et d'Industrie Agricole du Département de la Côte d'Or (*Society of Agriculture and Farming Industry of Côte d'Or*).
Société d'Horticulture de la Côte d'Or (*Horticultural Society of Côte d'Or*).

Douai—Association Vétérinaire des Départements du Nord et du Pas-de-Calais (*Veterinary Association of the Departments of Nord and Pas-de-Calais*).
Musée d'Histoire Naturelle (*Museum of Natural History*).
Société Nationale d'Agriculture, Sciences et Arts de Douai (*National Society of Agriculture, Sciences, and Arts*).

Draguignan—Société d'Agriculture, de Commerce et d'Industrie du Dép. du Var (*Society of Agriculture, Commerce, and Industry of the Department of Var*).
Société des Études scientifiques et littéraires (*Society of Scientific and Literary Studies*).

Dunkerque—Société Dunkerquoise pour l'Encouragement des Sciences (*Dunkirk Society for the Promotion of Science*).

Elbeuf—Société Industrielle d'Elbeuf (*Industrial Society*).

Epinal—Société d'Emulation du Département des Vosges (*Competitive Society of the Department of Vosges*).

Evreux—Société Libre d'Agriculture, Sciences, Arts et Belles-Lettres de l'Eure (*Free Society of Agriculture, Sciences, Arts, and Belles-Lettres of Eure*).

Fontenay-le-Comte—Société d'Horticulture de Fontenay-le-Comte (*Horticultural Society*).

Grenoble—Académie Delphinale (*Delphinal Academy*).

Société de Statistique du Département de l'Isère (*Society of Statistics of the Department of Isère*).

Gueret—Société des Sciences Naturelle de la Creuse (*Society of Natural Sciences of Creuse*).

Havre—Société Nationale Havraise d'Études diverses (*National Havre Society of Different Studies*).

Langres—Société Historique et Archéologique (*Historical and Archæological Society*).

Laon—Société Académique de Laon (*Academic Society*).

La Rochelle—Académie de La Rochelle (*Academy*).

Le Mans—Société d'Agriculture, Science et Arts de la Sarthe (*Society of Agriculture, Science, and Arts of the Sarthe*).

Le Puy—Société d'Agriculture, Sciences, Arts et Commerce (*Society of Agriculture, Sciences, Arts, and Commerce*).

Lille—Comité Flamand de France (*Flemish Committee of France*).

Société des Architectes du Département du Nord (*Society of Architects of the Department of the North*).

Société des Sciences, de l'Agriculture et des Arts (*Society of Sciences, Agriculture, and Arts*).

Limoges—Société Archéologique et Historique du Limousin (*Archæological and Historical Society of Limousin*).

Société des Sciences, Agriculture et Arts de la Haute-Vienne (*Society of Sciences, Agriculture, and Arts of Haute-Vienne*).

Lisieux—Société d'Agriculture du Centre de la Normandie (*Agricultural Society of the Centre of Normandy*).

Société d'Horticulture et de Botanique du Centre de la Normandie (*Horticultural and Botanical Society of the Centre of Normandy*).

Lons-le-Saulnier—Société d'Emulation du Jura (*Emulative Society of Jura*).

Société Pomologique de France (*Pomological Society of France*).

Lyon — Académie Nationale des Sciences, Belles-Lettres et Arts de Lyon (*National Academy of Sciences, Belles-Lettres, and Arts*).

Association Lyonnaise des Amis des Sciences Naturelles (*Lyonnese Association of the Friends of Natural Sciences.*)

Observatoire (*Observatory*).

Commission Hydrométrique de Lyon (*Hydrometric Commission*).

Museum d'Histoire Naturelle de Lyon (*Museum of Natural History*).

Société Academique d'Architecture de Lyon (*Academic Society of Architecture*).

Société de l'Agriculture, Histoire Naturelle et Arts Utiles de Lyon (*Society of Agriculture, Natural History, and the Useful Arts*).

Société Linnéenne de Lyon (*Linnean Society*).

Société de Médecine de Lyon (*Medical Society*).

Société Physiophile (*Physiophilist Society*).

Société des Sciences Industrielles (*Society of Industrial Sciences*).

Société des Sciences Médicales de Lyon (*Society of Medical Sciences*).

Mâcon—Académie de Mâcon: Soc. des Arts, Belles-Lettres et d'Agriculture (*Academy of Macon: Society of Arts, Belles-Lettres, and Agriculture*).

Marseille—Académie des Sciences, Lettres et Arts (*Academy of Sciences, Letters, and Arts*).

École des Beaux-Arts et Bibliothèque de la Ville (*School of Fine Arts and City Library*).

Observatoire (*Observatory*).

Société du Département d'Agriculture des Bouches du Rhône (*Society of the Department of Agriculture of Bouches du Rhône*).

Société de Statistique de Marseille (*Society of Statistics*).

Union des Arts (*Union of Arts*).

Mayenne—Société d'Agriculture de l'Arrondissement de Mayenne (*Agricultural Society of the Arrondissement of Mayenne*).

Société Archéologique de la Mayenne (*Archæological Society*).

Meaux—Société d'Archéologie, Sciences, Lettres et Arts du Dep. de Seine et Marne (*Society of Archæology, Science, Letters, and Arts of the Dep. of Seine-et-Marne*).

Société d'Horticulture de l'Arrondissement de Meaux (*Horticultural Society of the Arrondissement of Meaux*).

Melun—Société d'Archéologie, Sciences, Lettres et Arts du Dép. de Seine et Marne (*Society of Archæology, Sciences, Letters, and Arts of the Dep. of Seine and Marne*).

Mende—Société d'Agriculture, Industrie, Sciences et Arts du Département de la Lozère (*Society of Agriculture, Manufactures, Sciences, and Arts of the Dep. of Lozère*).

Mirecourt—Société Agricole, Horticole et Viticole de l'Arrondissement de Mirecourt (*Society of Agriculture, Horticulture, and Vine-culture of the Arrondissement of Mirecourt*).

Montauban—Société des Sciences, Agriculture et Belles-Lettres de Tarn et Garonne (*Society of Sciences, Agriculture, and Belles-Lettres of Tarn and Garonne*)

Montbéliard—Société d'Emulation (*Emulative Society*).

Montpellier—Académie de Montpellier: Faculté de Médecine (*Academy: Medical Faculty*).

Académie des Sciences et Lettres de Montpellier (*Academy of Sciences and Letters*).

Messager Agricole (*Agricultural Herald*).

Société Archéologique de Montpellier (*Archæological Society*).

Société Centrale d'Agriculture du Département de la Herault (*Central Society of Agriculture of the Department of Herault*).

Société Générale d'Encouragement à la Sericiculture (*General Society for the Promotion of Silk Culture*).

Station Sericicole de Montpellier (*Silk-culture Station*).

Moulins—Société d'Emulation du Département de l'Allier (*Emulative Society of the Dep. of Allier*).

Société d'Horticulture de l'Allier (*Society of Horticulture of Allier*).

Nancy—Académie de Stanislas (*Stanislas Academy*).

École de Médecine et de Pharmacie (*School of Medicine and Pharmacy*).

Société d'Archéologie Lorraine (*Lorraine Society of Archæology*).

Société Centrale d'Agriculture (*Central Society of Agriculture*).

Société Régionale d'Acclimatation pour la Zône Nord-Est (*Sectional Society of Acclimatation for the Northeast Zone*).

Société des Sciences de Nancy (Ancienne Société des Sciences Naturelles de Strasbourg, fondée en 1828) (*Society of Sciences, formerly the Society of Natural Sciences of Strasburg, founded in* 1828)

Nantes—Société Académique de Nantes et du Dép. de la Loire inférieure (*Academic Society of Nantes and the Dep. of Loire Inferieure*).

Société des Beaux-Arts de Nantes (*Society of Fine Arts*).

Société d'Histoire Naturelle (*Society of Natural History*).

Nevers—Société Nivernaise des Sciences, Lettres et Arts (*Society of Sciences, Letters, and Arts*)

Nice—Société Centrale d'Agriculture, d'Horticulture et d'Acclimatation (*Central Society of Agriculture, Horticulture, and Acclimatation*).

Société des Lettres, Sciences et Arts des Alpes maritimes (*Society of Letters, Sciences, and Arts of the Maritime Alps*)

Nimes—Académie du Gard (*Academy of Gard*).

Société d'Horticulture et de Botanique du Gard (*Horticultural and Botanical Society of Gard*).

Niort—Société des Arts, Sciences et Belles-Lettres (*Society of Arts, Sciences, and Belles-Lettres*).

Société d'Horticulture, d'Arboriculture et de Viticulture des Deux-Sèvres (*Society of Horticulture, Arboriculture, and Vine-culture of Deux-Sèvres*).

Société de Statistique, Sciences et Arts du Département des Deux-Sèvres (*Society of Statistics, Sciences, and Arts of the Dep. of Deux-Sèvres*).

Orléans—Société d'Agriculture, Sciences, Belles-Lettres et Arts d'Orléans (*Society of Agriculture, Sciences, Belles-Lettres, and Arts*).

Société Archéologique et Historique de l'Orléanais (*Archæological and Historical Society*).

Paris—Gustave Bossange, Libraire, 16 Rue du Quatre-Septembre (*Agent of the Smithsonian Institution*).

Académie Nationale de Médecine (*National Academy of Medicine*).

Administration des Lignes Télégraphiques (*Administration of Telegraphic Lines*).
Annales des Mines (*Annals of Mines*).
Annales des Ponts et Chaussées (*Annals of Civil Engineering*).
Annales des Sciences Naturelles (*Annals of Natural Sciences*).
Archives générales de Médecine (*General Records of Medicine*).
L'Athenée Oriental (*Oriental Atheneum*).
Bibliothèque de la Ville de Paris (*Library of the City*).
Bibliothèque du Jardin des Plantes (Muséum d'Histoire Naturelle) (*Library of the Garden of Plants—Museum of Natural History*).
Bibliothèque Nationale (*National Library*).
Bibliothèque Municipale du Seizième Arrondissement de Paris (*Municipal Library of the Sixteenth Arrondissement*).
Bibliothèque Polonaise historique littéraire (*Polonese Historical Literary Library*).
Bureau des Longitudes (*Bureau of Longitudes*).
Club Alpin Français (*French Alpine Club*).
Conservatoire des Arts et Métiers (*Conservatory of Arts and Trades*).
Cosmos (*Cosmos*).
Dépot des Cartes et Plans (*Depot of Charts and Designs*).
École Nationale des Mines (*National School of Mines*).
École Nationale et Spéciale des Langues orientales vivantes (*National and Special School of Living Oriental Languages*).
École Polytechnique (*Polytechnic School*).
École des Ponts et Chaussées (*School of Civil Engineering*).
Gazette Médicale de Paris (*Medical Gazette*).
Institut de France (*Institute of France*).
Journal d'Agriculture pratique (*Journal of Practical Agriculture*).
Journal de Conchyliologie (*Journal of Conchology*).
Journal d'Hygiène (*Journal of Hygiene*).
Journal des Savants (*Journal of Scientists*).
Ministère de l'Agriculture et du Commerce (*Ministry of Agriculture and Commerce*).
Ministère des Affaires Étrangères (Dép. de Statistique) (*Ministry of Foreign Affairs—Dep. of Statistics*).
Ministère de la Guerre (*Ministry of War*).
Ministère de l'Instruction Publique et des Cultes (*Ministry of Public Instruction and Worship*).

Ministère des Lettres, de Sciences et Beaux-Arts (*Ministry of Letters, Sciences, and the Fine Arts*).
Ministère de la Marine et des Colonies (*Ministry of Marine and the Colonies*).
Ministère des Travaux publiques (*Ministry of Public Works*).
Observatoire Nationale (*National Observatory*).
Observatoire Météorologique Central de Montsouris (*Central Meteorological Observatory of Montsouris*).
Petites Nouvelles Entomologiques (*Small Entomological Notices*).
Revue des Cours Littéraires (*Review of Literary Treatises*).
Revue Horticole (*Horticultural Review*).
Revue Industrielle (*Industrial Review*).
Revue et Magazin de Zoologie (*Review and Magazine of Zoology*).
Revue de Sericiculture comparée (*Review of Comparative Silk Culture*).
Revue Scientifique de la France et de l'Étranger (*Scientific Review of France and Foreign Countries*).
Société d'Acclimatation (*Society of Acclimatation*).
Société des Agriculteurs de France (*Association of the Agriculturists of France*).
Société Americaine de France (*American Society of France*).
Société Anatomique (*Anatomical Society*).
Société d'Anthropologie (*Anthropological Society*).
Société d'Apiculture (*Society of Apiculture*).
Société Asiatique (*Asiatic Society*).
Société de Biologie (*Biological Society*).
Société Botanique de France (*Botanical Society of France*).
Société Centrale d'Agriculture de France (*Central Society of Agriculture of France*).
Société des Architectes Centrale (*Central Society of Architects*).
Société Centrale d'Éducation et d'Assistance pour les Sourds-muets en France (*Central Society for the Education and Assistance of the Deaf and Dumb of France*).
Société Centrale d'Horticulture de Paris (*Central Society of Horticulture*).
Société Chimique de Paris (*Chemical Society*).
Société de Chirurgie de Paris (*Society of Chirurgery*).
Société de l'École des Chartes (*School of Charts*).
Société d'Encouragement pour l'Industrie Nationale (*Society to Promote National Industries*).

Société Entomologique de France (*Entomological Society of France*).

Société d'Ethnographie (*Ethnographical Society*).

Société des Etudes Historiques (*Society of Historical Studies*).

Société des Études Japonaises, Chinoises, Tartares et Indo-Chinoises (*Society for Japanese, Chinese, Tartar, and Indo-Chinese Studies*).

Société Française d'Archéologie et de Numismatique (*French Society of Archæology and Numismatics*).

Société Française de Navigation Aérienne (*French Society of Aerial Navigation*).

Société Française pour la conservation des Monuments Historiques (*French Society for the Preservation of Historical Monuments*).

Société Française de Statistique Universelle (*Acad. Nat. Agr. Manufactur. et Commerciale*) (*French Society of Universal Statistics* (*National Agr. Manufac. and Commercial Academy*).

Société Franklin (*Franklin Society*).

Société de Géographie (*Geographical Society*).

Société Géologique de France (*Geological Society of France*).

Société de l'Histoire de France (*Society of the History of France*).

Société de l'Histoire du Protestantisme Français (*Society of the History of French Protestantism*).

Société Nationale et Centrale de Médecine Vétérinaire (*National and Central Society of Veterinary Medicine*).

Société des Ingenieurs Civils (*Society of Civil Engineers*).

Société de Législation comparée (*Society of Comparative Legislation*).

Société Médicale Allemande de Paris (*German Medical Society of Paris*).

Société Médicale Homœopathique (*Homœopathic Medical Society*).

Société Médicale des Hôpitaux de Paris (*Medical Society of the Hospitals of Paris*).

Société Médico-Légale de Paris (*Medico-Legal Society of Paris*).

Société Météorologique de France (*Meteorological Society of France*).

Société Nationale des Antiquaires de France (*National Society of Antiquaries of France*).

Société Nouvelle des Forges et Chantiers de la Méditerranée (28 rue Notre-Dame-des-Victoires) (*New Society of Forges and Dock-yards of the Mediterranean* (28 *Rue Notre Dame des Victoires*).

Société Orientale de France (*Oriental Society of France*).

Société de Pharmacie (*Society of Pharmacy*).

Société Philologique de Paris (*Philological Society of Paris*).

Société Philomatique (*Philomatic Society*).

Société Polytechnique (*Polytechnical Society*).

Société Protectrice des Animaux (*Society for the Protection of Animals*).

Société de Statistique de Paris (*Society of Statistics*).

Société de Thérapeutique (*Society of Therapeutics*).

Perigueux—Société d Agriculture, Sciences et Arts de la Dordogne (*Society of Agriculture, Sciences, and Arts of Dordogne*).

Perpignan—Société Agricole, Scientifique et Littéraire des Pyreneés Orientales (*Agricultural, Scientific, and Literary Society of eastern Pyrenees.*)

Poitiers—Société d'Agriculture, Belles-Lettres, Sciences et Arts de Poitiers (*Society of Agriculture, Belles-Lettres, Sciences, and Arts*).

Société des Antiquaires de l'Ouest (*Society of Antiquaries of the West*).

Poligny—Société d'Agriculture, Sciences et Arts de Poligny (*Society of Agriculture, Sciences, and Arts*).

Privas—Société des Sciences Historiques et Naturelles de l'Ardèche (*Society of Historical and Natural Sciences of Ardèche*).

Rambouillet—Société Archéologique (*Archæological Society*).

Reims—Académie Nationale de Reims (*National Academy*).

Muséum d'Histoire Naturelle de Reims (*Museum of Natural History*).

Société des Sciences Naturelles (*Society of Natural Sciences*).

Rennes—Bibliothèque de Rennes (*Library*).

Société Archéologique du Dép. d'Ille et Vilaine (*Archæological Society of the Dep. of Ille and Vilaine*).

Société des Sciences Physiques et Naturelles du Dép. d'Ille et Vilaine (*Society of Physical and Natural Sciences of the Dep. of Ille and Vilaine*).

Rochefort—Société d'Agriculture, des Belles-Lettres, Sciences et Arts de Rochefort (*Society of Agriculture, Belles-Lettres, Sciences and Arts*).

Roubaix—Société d'Emulation de Roubaix (*Society of Emulation*).

Rouen—Académie des Sciences, Belles-Lettres et Arts de Rouen (*Academy of Sciences, Belles-Lettres, and Arts*).

Bibliothèque de la Ville de Rouen (*City Library*).

Commission des Antiquités de la Seine-inférieure (*Commission of Antiquities of Lower Seine*).

Société des Amis des Sciences Naturelles de Rouen (*Society of Friends of Natural Sciences*).

Société Centrale d'Horticulture de la Seine-inférieure (*Central Society of Lower Seine*).

Société Libre d'Emulation du Commerce et de l'Industrie de la Seine-inférieure (*Free Emulative Society of Commerce and Manufactures of Lower Seine*).

Saint-Étienne—Société de l'Industrie Minérale (*Society of Mineral Industry*).

Saint-Germain-en-Laye—Société d'Horticulture de Saint-Germain-en-Laye (*Horticultural Society*).

Saint-Jean-d'Angely—Société Historique de St.-Jean-d'Angely (*Historical Society*).

Saint-Lo—Société d'Agriculture, d'Archéologie et d'Histoire Naturelle du Dép. de la Manche (*Society of Agriculture, Archæology, and Natural History of the Dep. of Manche*).

Saint-Maixent—Société de Statistique, Sciences et Arts des Deux-Sèvres (*Society of Statistics, Sciences, and Arts of Deux-Sèvres*).

Saint-Omer—Société des Antiquaires de la Marine (*Society of Antiquities of Marine*).

Saint-Quentin—Société Académique des Sciences, Arts, Belles-Lettres et Agriculture (*Academic Society of Sciences, Arts, Belles-Lettres, and Agriculture*).

Société d'Horticulture de Saint-Quentin (*Horticultural Society*).

Semur—Société des Sciences Historiques et Naturelles de Semur (*Society of Historical and Natural Sciences*).

Senlis—Comité Archéologique de Senlis (*Archæological Committee*).

Société d'Horticulture de Senlis (*Horticultural Society*).

Sens—Société Archéologique (*Archæological Society*).

Soissons—Société Archéologique, Historique et Scientifique de Soissons (*Archæological, Historical, and Scientific Society*).

Société des Sciences, Belles-Lettres et Arts (*Society of Sciences, Belles-Lettres, and Arts*).

Tarbes—Société Académique des Hautes-Pyrénées (*Academic Society of Hautes-Pyrenées*).

Toulon—Société Académique du Var (*Academic Society of Var*).

Toulouse—Académie Nationale des Sciences, Inscriptions et Belles-Lettres de Toulouse (*National Society of Sciences, Inscriptions, and Belles-Lettres*).

Académie des Jeux-Floraux (*Academy of Floral Games*).

Observatoire (*Observatory*).

Société d'Agriculture de la Haute-Garonne et de l'Ariége (*Agricultural Society of Haute-Garonne and Ariége*).

Société Archéologique du Midi de la France (*Archæological Society of the South of France*).

Société d'Histoire Naturelle de Toulouse (*Society of Natural History*).

Société Nationale de Médecine, Chirurgie et Pharmacie de Toulouse (*National Society of Medicine, Chirurgery, and Pharmacy*).

Tours—Société d'Agriculture, Sciences, Arts et Belles-Lettres (*Society of Agriculture, Sciences, Arts, and Belles-Lettres*).

Troyes—Académie Royale de l'Aube (*Royal Academy of Aube*).

Société Académique d'Agriculture, Sciences, Arts et Belles-Lettres de l'Aube (*Academic Society of Agriculture, Sciences, Arts, and Belles-Lettres of Aube*).

Société d'Agriculture de l'Aube (*Society of Agriculture of Aube*).

Société Horticole, Vigueronne et Forestière de Troyes (*Horticultural, Vine-dressing, and Forestry Society*).

Valence—Société Départementale d'Agriculture de la Drôme (*Departmental Society of Agriculture of Drôme*).

Valenciennes—Société Nationale d'Agriculture, Sciences et Arts de l'Arrondissement de Valenciennes (Nord) (*National Society of Agriculture, Sciences, and Arts of the Arrondissement of Valenciennes*).

Verdun—Société Philomathique (*Philomathic Society*).

Versailles—Société d'Agriculture et des Arts de Seine-et-Oise (*Society of Agriculture and Arts of Seine-et-Oise*).

Société d'Horticulture du Département de Seine-et-Oise (*Horticultural Society of the Department of Seine-et-Oise*).

Société des Sciences Morales, des Lettres et des Arts de Seine-et-Oise (*Society of Moral Sciences, Letters, and Arts of Seine-et-Oise*).

Société des Sciences Naturelles et Médicales de Seine-et-Oise (*Society of Natural and Medical Sciences of Seine-et-Oise*).

Vesoul—Commission d'Archéologique de la Haute-Saône (*Commission of Archæology of Haute-Saône*).

Société d'Agriculture, Science et Arts de la Haute-Saône (*Society of Agriculture, Science, and Arts of Haute-Saône*).

Vitry-le-François—Société des Sciences et Arts de Vitry-le-François (*Society of Sciences and Arts*).

GERMANY, including AUSTRO-HUNGARY.

Allgemeiner Deutscher Apotheker-Verein (*German General Union of Apothecaries*).

Deutsche Gesellschaft für Anthropologie, Ethnologie und Urgeschichte (*German Society of Anthropology, Ethnology, and Ancient History*).

Deutsche Ornithologen-Gesellschaft (*German Ornithological Society*).

Verein für Geschichte des Bodensees und seiner Umgebung (*Historical Society of the Lake of Constance and its environs*).

Verein der Süddeutschen Forstwirthe (*Union of South German Foresters*).

Versammlung Deutscher Land- und Forstwirthe (*Assembly of German Agriculturists and Foresters*).

Versammlung Deutscher Naturforscher und Aerzte (*Assembly of German Naturalists and Physicians*).

Aachen (*Prussia*)—Kön. Rheinisch-Westphalische Polytechnische Schule (*Royal Rhenish-Westphalian Polytechnical School*).

Stadt-Bibliothek (*City Library*).

Agram (*Hungary*)—Handels und Gewerbekammer für Kroatien (*Chamber of Commerce and Trade for Croatia*).

K. K. Kroatisch-Slavonische Landwirthschafts-Gesellschaft (*Imperial Royal Croatian-Slavonic Society of Agriculture*).

Gesellschaft für südslav. Geschichte und Alterthümer (*Society for South Slav. History and Archæology*).

Naturhistorisches National-Museum (*National Museum of Natural History*).

Redaction der Gospodarski List (*Editor of the Gospodarski List*).

Agram University.

Südslavische Akademie der Wissenschaften und Kunst (*South Slavic Academy of Sciences and Arts*).

Allenburg (*Prussia*)—Gesammt-Verein des Deutsch. Geschichte und Alterthums-Verein (*Central Union of the German Union of History and Archæology.*)

Altenburg (*Saxe-Altenburg*) — Geschichts- und Alterthumsforschende Gesellschaft (*Society for Historic and Archæol. Researches*).

Naturforschende Gesellschaft des Osterlandes (*Society of Natural History of Osterland*).

Pomologische Gesellschaft (*Pomological Society*).

Altona (*Prussia*)—Statistisches Bureau des Stadt Altona (*Statistic Bureau of the City of Altona*).

Annaberg (*Saxony*)—Annaberg-Buchholzer Verein für Naturkunde *Annaberg-Buchholz Union of Natural History*).

Ansbach (*Bavaria*)—Historischer Verein in Mittelfranken (*Historic Union of Central Franconia*).

Arnstadt (*Schwarzburg - Sondershausen*)—Fürstliches Gymnasium (*Princely Gymnasium*).

Arolsen (*Waldeck*)—Landwirthschaftlicher Verein im Fürstenthum Waldeck (*Agricultural Union in the Principality of Waldeck*).

Augsburg (*Bavaria*)—Historischer Verein von Schwaben und Neuburg (*Historical Union of Swabia and Neuburg*).

Deutscher Apotheker Verein (*Society of German Apothecaries*).

Landwirthsch. Verein für Schwaben und Neuburg (*Agricultural Union of Swabia and Neuburg*).

Naturhistorischer Verein (*Natural History Society*).

Redaction des Auslandes (*Editor of the Ausland*).

Bayreuth (*Bavaria*)—Historischer Verein für Oberfranken (*Historic Union of Upper Franconia*).

Polytechnische Gesellschaft (*Polytechnical Society*).

Bamberg (*Bavaria*)—Gewerbe-Verein (*Traders' Union*).

Königliche Bibliothek (*Royal Library*).

Naturforschende Gesellschaft (*Natural History Society*).

Bendorf bei Koblenz (*Prussia*)—Deutsche Gesellschaft für Psychiatrie und gerichtliche Psychologie (*German Society of Psychiatry and Criminal Psychology*).

Berlin (*Prussia*)—Seine Majestät der Kaiser von Deutschland und König von Preussen (*His Majesty the Emperor of Germany and King of Prussia*).

Afrikanische Gesellschaft (*African Society*).

Archiv für Anatomie (*Archiv for Anatomy*).

Magistrat der Hauptstadt Berlin (*City Council*).
Orientalische Gesellschaft (*Oriental Society of Berlin*).
Repertorium der Wissenschaften (*Repertory of Sciences*).
Akklimatisations-Verein in Berlin (*Society of Acclimatization*).
Architecten-Verein (*Architects' Union*).
Berliner Aquarium (Dr. Brehm) (*Aquarium*).
Botanischer Verein für die Provinz Brandenburg, etc. (*Botanic Society of the Province of Brandenburg*).
Central Verein für das Wohl der arbeitenden Klassen (*Central Union for the Welfare of the Working Classes*).
Deutsche Chemische Gesellschaft (*German Chemical Society*).
Deutsche Fischerei-Verein (*German Fishery Society*).
Deutsche Geologische Gesellschaft (*German Geological Society*).
Deutsches Gewerbemuseum (*German Polytechnic Museum*).
Deutsche Shakespeare-Gesellschaft (*German Shakspeare Society*).
Deutscher Verein für Fabrication von Ziegeln, Thonwaaren und Cement (*German Union for the Manufacture of Bricks, Pottery, and Cement*).
Entomologischer Verein (*Entomological Society*).
General-Direction der Königlichen Museen (*Director-General of the Royal Museums*).
Gesellschaft für Anthropologie, Ethnologie und Urgeschichte (*Society of Anthropology, Ethnology, and Ancient History*).
Gesellschaft für Erdkunde (*Geographical Society*).
Gesellschaft Naturforschender Freunde (*Society of Amateurs of Natural History*).
Gesellschaft für das Studium der neueren Sprachen (*Society for the Study of Modern Languages*).
Kais. Admiralität Haupt-Bibliothek (*General Library of the Imperial Navy*).
Kais. Statistisches Amt. (*Imperial Statistic Bureau*).
Königliche Bibliothek (*Royal Library*).
Königlich Geologische Landes-Anstalt und Bergakademie (*Royal Geologic Institution and Mining Academy*).
Königliche Gewerbe-Akademie (*Royal Polytechnical Academy*).
Königliches Ministerium des Innern (*Royal Department of the Interior*).

Königliches Landes-Oekonomie-Collegium (*Royal Board of Rural Economy*).

Königliches Landwirthschaftliches Museum (*Royal Agricultural Museum*).

Königlich Preussische Akademie der Wissenschaften (*Royal Prussian Academy of Sciences*).

Königlich Preussischer Generalstab der Armee (*Royal Prussian Staff of the Army*).

Königl. Preuss. Geodätisches Institut (*Royal Prussian Geodetic Institute*).

Königlich Preussische Kriegs-Akademie (*Royal Prussian Military Academy*).

Königliches Preuss. Ministerium für Handel, Gewerbe, und öffentliche Arbeiten (*Royal Prussian Department for Commerce, Trade, and Public Works*).

Königliches Preuss. Ministerium für landwirthschaftl. Angelegenheiten (*Royal Prussian Department of Agriculture*).

Königl. Preuss. Statistisches Bureau (*Royal Prussian Statistical Bureau*).

Königlich Preussische Technische Bau-Deputation (*Royal Prussian Commission for the Inspection of Buildings*).

Königlich Preussische vereinigte Artillerie- und Ingenieur-Schule (*Royal Prussian Artillery and Engineering School*).

Königl. Universitäts-Bibliothek (*Royal University Library*).

Königl. Universitäts-Sternwarte (*Royal University Observatory*).

Medicinische Gesellschaft (*Medical Society*).

Meteorologisches Institut (*Meteorological Institute*).

Physikalische Gesellschaft (*Physical Society*).

Polytechnische Gesellschaft (*Polytechnical Society*).

Preuss. Haupt-Bibelgesellschaft (*Prussian Principal Biblical Society*).

Redaction des Archivs für path. Anatomie (*Archives for Path. Anatomy*).

Redaction der Jahrbücher für die Deutsche Armee und Marine (*Annals of the German Army and Navy*).

Redaction des Jahrbuches für wiss. Botanik (*Annals of Scientific Botany*).

Redaction des Journals für Ornithologie (*Journal for Ornithology*).

Redaction des Landwirthschaftlichen Centralblattes für Deutschland (*Agricultural Central Gazette of Germany*).

Redaction der Linnæa (*Linnæa*).

Redaction des Magazins für die Literatur des Auslandes (*Magazine for Foreign Literature*).

Redaction des Nautischen Jahrbuchs (Dr. C. Bremiker) (*Nautical Almanac*).

Redaction der Repertorium der Wissenschaften (*Repertory of Sciences*).

Redaction der Zeitschrift für Ethnologie (A. Bastian and R. Hartmann) (*Periodical for Ethnology*).

Stenographischer Verein (*Stenographers' Union*).

Thierschutz-Verein (*Society for the Prevention of Cruelty to Animals*).

Verein Deutscher Ingenieure (*German Engineers' Union*).

Verein für Eisenbahnkunde (*Society for Railroad Engineering*).

Verein für Geschichte der Mark Brandenburg (*Historical Society of the Province of Brandenburg*).

Verein zur Beförderung des Gartenbaues in den Königl. Preuss. Staaten (*Society for the Promotion of Horticulture*).

Verein zur Beförderung des Gewerbefleisses in Preussen (*Society for the Promotion of Industry in Prussia*).

Verein zur Förderung der Photographie (*Society for the Advancement of Photography*).

Zoologischer Garten (*Zoological Garden*).

Zoologisches Museum der Königl. Universität (*Zoological Museum of the Royal University*).

Bilk (bei Düsseldorf) (*Prussia*)—Sternwarte (*Observatory*).

Blankenburg (*Brunswick*) — Naturwissenschaftlicher Verein des Harzes (*Natural History Society of the Harz Mountains*).

Bonn (*Prussia*) — Landwirthschaftlicher Central-Verein für Rheinpreussen (*Central Agricultural Society of Rhenish Prussia*).

Naturhistorischer Verein der preussischen Rheinlande und Westphalens (*Natural History Society of the Rhenish Provinces and Westphalia*).

Niederrheinische Gesellschaft für Natur- u. Heilkunde (*Netherrhenish Society for Natural and Medical Science*).

Redaction des Archivs für die gesammte Physiologie des Menschen und der Thiere (*Archives of the General Physiology of Man and Beast*).

Redaction des Wiegmann'schen Archivs für Naturgeschichte (Prof. Troschel) (*Wiegmann's Archives of Natural History*).
Universitäts-Bibliothek (*University Library*).
Universitäts-Sternwarte (*University Observatory*).
Verein von Alterthumsfreunden im Rheinlande (*Society of Archæologists of the Rhenish Provinces*).

Braunschweig (*Brunswick*)—F. Vieweg und Sohn (*Vieweg and Son*).
Garten-Verein im Herzogthum Braunschweig (*Horticultural Society of the Duchy of Brunswick*).
Stadt-Bibliothek (*City Library*).

Bregenz (*Austria*)—Vorarlberger Museums-Verein (*Vorarlberg Museum Society*).

Bremen (*Hanse-Town*)—Bibliothek des Museums (*Museum Library*).
Bremer Regierung (*Government*).
Bureau für Bremische Statistik (*Statistics Bureau*).
Gartenbau-Verein für Bremen (*Horticultural Society*).
Handels-Kammer (*Chamber of Commerce*).
Künstler-Verein für Bremische Geschichts- und Alterthumskunde (*Artists' Union of the History and Archæology of Bremen*).
Landwirthschafts-Verein (*Agricultural Society*).
Naturwissenschaftlicher Verein (*Society of Natural Sciences*).
Observatorium der Navigations-Schule (*Observatory of the School of Navigation*).
Stadt-Bibliothek (*City Library*).
Verein für die Deutsche Nordpolarfahrt (*Society of the German North Pole Expedition*).

Breslau (*Prussia*)—Blinden-Anstalt (*Asylum for the Blind*).
Königl. Preussisches Ober-Berg-Amt. (*Royal Prussian Direction of Mining*).
Landwirthschaftlicher Central-Verein für Schlesien (*Central Agricultural Society for Silesia*).
Physiologisches Institut (*Physiological Institute*).
Redaction der Schlesischen Provinzialblätter Rübezahl (*Provincial Paper Rübezahl*).
Schlesische Blinden-Unterrichts-Anstalt (*Silesian Institute for the Education of the Blind*).
Schlesischer Central-Gewerbe-Verein (*Silesian Central Polytechnical Society*).

Schlesische Gesellschaft für vaterländische Cultur (*Silesian Society for Home Economy*).
Universitäts-Bibliothek (*University Library*).
Universitäts-Sternwarte (*University Observatory*).
Verein für das Museum Schlesischer Alterthümer (*Society of the Museum of Silesian Archæology*).
Verein für schlesische Insektenkunde (*Society of Silesian Entomology*).

Bromberg (*Prussia*)—Landwirthschaftlicher Central-Verein für den Netze-District (*Agricultural Central Union for the District of Netze*).

Brünn (*Austria*)—K. K. Mährisch-schlesische Gesellschaft für Ackerbau- Natur- und Landeskunde (*Imp. Royal Moravian-Silesian Soc. of Agriculture, Natural History, and Geography*).
Mährisch-schlesisches Blinden-Erziehungs-Institut (*Moravian-Silesian Institute for Educating the Blind*).
Naturforschender Verein (*Naturalists' Society*).

Budapest (*Hungary*)— A Magyar Tudományos Akademia.
Magyar Királyi Tudomány Egyetem (*Royal Hungarian University*).
Geologische Gesellschaft für Ungarn (*Geological Society of Hungary*).
Handels-Akademie (*Commercial Academy*).
Királyi Magyar Természettudományi Társulat (*Royal Hungarian Society of Natural Science*).
K. K. Obergymnasium (*Imperial Royal Higher Gymnasium*).
K. K. Sternwarte (*Imperial Royal Observatory*).
K. K. Ober-Realschule (*Imperial Royal Real School*).
Kön. Ungar. Central-Anstalt für Meteorologie und Erd-Magnetismus (*Royal Hungarian Central Institute for Meteorology and Terrestrial Magnetism*).
Magyar Nemzeti Museum.
Pestváros Statisztikai Hivatala (*Statistical Bureau*).

Cassel. See *Kassel.*

Celle (*Prussia*)—Kön. Landwirthschafts-Gesellschaft (*Royal Agricultural Society*).

Chemnitz (*Saxony*)—K. Gewerbeschule (*Royal Polytechnic School*).
Naturwissenschaftliche Gesellschaft (*Society of Natural Sciences*).

Oeffentliche Handels-Lehranstalt (*Public Commercial School*).
Redaction der Deutschen Industrie-Zeitung (*German Industrial Gazette*).
Statistisches Bureau (*Statistical Bureau*).
Verein für Chemnitzer Geschichte (*Society for the History of Chemnitz*).

Clempenow bei Anclam (*Prussia*). See *Eldena*.

Coblenz. See **Koblenz.**

Colmar (*Alsace*)—Société d'Histoire Naturelle de Colmar (*Colmar Natural History Society*).

Cracau. See **Krakau.**

Czernowitz (*Austria*)—Verein für Landeskultur und Landeskunde im Herzogthume Bukowina (*Soc. for Agriculture and Geography of the Duchy of Bukowina*).

Danzig (*Prussia*)—Hauptverein west-preussischer Landwirthe (*Central Union of West Prussian Agriculturists*).
Naturforschende Gesellschaft (*Society of Natural History*).
Sternwarte (*Observatory*).

Darmstadt (*Hesse*)—Gartenbau-Verein (*Horticultural Union*).
Grossherzogliche Central-Stelle für Gewerbe und Handel (*Grand-ducal Central Bureau of Industry and Commerce*).
Grossherzoglich Hessische Central-Stelle für die Landes-Statistik (*Grand-ducal Hessian Central Bureau of Home Statistics*).
Grossherzoglich Hessischer Gewerbe-Verein (*Grand-ducal Hessian Polytechnic Society*).
Grossherzoglich Hessische Kataster-Amt. (*Grand-ducal Hessian Kataster Bureau*).
Grossherzoglich Hessische Polytechnische Schule (*Grand-ducal Hessian Polytechnical School*).
Grossherzogliche Hof-Bibliothek (*Grand-ducal Court Library*).
Grossherzogliches Museum (*Grand-ducal Museum*).
Historischer Verein für das Grossherzogthum Hessen (*Historical Society of the Grand Duchy of Hessen*).
Mittelrheinisch-geologischer Verein (*Middle Rhenish Geological Society*).
Verein für Erdkunde u. verwandte Wissenschaften (*Society for Geography and kindred Sciences*).

Dessau (*Anhalt*)—Naturhistorischer Verein (*Society of Natural History*).

Donaueschingen (*Baden*)—Verein für Geschichte und Naturgeschichte der Baar (*Society of History and Natural History of the Baar*).

Dresden (*Saxony*)—Seine Majestät der König von Sachsen (*His Majesty the King of Saxony*).

Flora: Gesellschaft für Botanik und Gartenbau (*Botanical and Horticultural Society*). ("*Flora.*")

General-Direction der K. Sammlungen für Kunst und Wissenschaft (*Director-General of the Royal Collections of Art and Science*).

Gesellschaft für Botanik und Zoologie (*Botanical and Zoological Society*).

Gesellschaft für Natur- und Heilkunde (*Society of Natural and Medical Science*).

Gewerbe-Verein (*Polytechnical Union*).

Kaiserliche Leopoldino-Carolinische Deutsche Akademie der Naturforscher (*Imperial "Leopoldino-Carolinische" German Academy of Naturalists*).

Königl. Historisches Museum (*Royal Historical Museum*).

Königl. Landes- Blinden-Anstalt (*Royal National Blind Asylum*).

Königl. Öffentliche Bibliothek (*Royal Public Library*).

Königl. Polytechnische Schule (*Royal Polytechnical School*).

Königl. Mineralogisches Museum (*Royal Mineralogical Museum*).

Königl. Sächs. Oekonomische Gesellschaft (*Royal Saxonian Agricultural Society*).

Königl. Sächs. Statistisches Bureau (*Royal Saxonian Statistical Bureau*).

Königl. Sächs. Verein für Erforschung und Erhaltung vaterländischer Alterthümer (*Royal Saxonian Society for the Investigation and Preservation of Home Antiquities*).

Königl. Sanitäts-Direction (*Director of Royal Sanitary Board*).

Königl. Stenographisches Institut (*Royal Stenographic Institute*).

Königl. Zoologisches Museum (*Royal Zoological Museum*).

Landes-Medicinal-Collegium (*National Medical Commission*).

Ministerium des Königlichen Hauses (*Minister of the Royal Household*).

Naturhistorisches Museum (*Museum of Natural History*).

Naturwissenschaftliche Gesellschaft "Isis" (*The Society of Natural Science "Isis"*).

Neue Jahrb. für Mineralogie, Geologie, und Palæontologie (Dr. Geinitz) (*New Annual of Mineralogy, Geology, and Palæontology*).

Öffentliche Handels-Lehranstalt des Dresdner Kaufmannschaft (*Public Commercial Institute of the Merchants' Society of Dresden*).

Photographische Gesellschaft (*Photographical Society*).

Sächsischer Ingenieur- und Architekten-Verein (*Saxonian Engineers' and Architects' Union*).

Thierschutz-Verein (*Society for the Prevention of Cruelty to Animals*).

Verein für Erdkunde (*Geographical Society.*)

Dürckheim (*Bavaria*)—Pollichia, Naturwissenschaftl. Verein der Rheinpfalz (*Pollichia, Society of Natural Science of the Rhenish Palatinate*).

Düsseldorf (*Prussia*)—Rheinisch-Westphalische Gefängniss-Gesellschaft (*Rhenish-Westphalian Prison Association*).

Eisenach (*Saxe-Weimar*)—Grossherz. Carl Friedrichs-Gymnasium (*Grand-ducal Charles Frederick "Gymnasium"*).

Real-Gymnasium (*"Real-Gymnasium"*)

Elberfeld (*Prussia*)—Bergischer Geschichts-Verein (*Berg Historical Society*).

Naturwissenschaftlicher Verein von Elberfeld u. Barmen (*Society of Natural Science of Elberfeld and Barmen*).

Eldena bei Greifswald (*Prussia*)—Baltischer Verein zur Beförderung der Landwirthschaft (*Baltic Association for the Advancement of Agriculture*).

Gartenbau-Verein für Neuvorpommern und Rügen (*Horticultural Society of New Pommern and Rügen*).

K. P. Staats- und landwirthschaftl. Akademie Eldena (*Royal Prussian Agricultural Academy "Eldena"*).

Emden (*Prussia*)—Gesellschaft für bildende Kunst und vaterländische Alterthümer (*Society of Plastic Art and Home Antiquities*).

Naturforschende Gesellschaft (*Naturalists' Society*).

Taubstummen-Anstalt (*Deaf and Dumb Institute*).

Ems (*Prussia*)—Redaction der Balneologischen Zeitung (*Balneological Gazette*).

Erfurt (*Prussia*)—Akademie Gemeinnütziger Wissenschaften (*Academy of Useful Sciences*).
Gartenbau-Verein (*Horticultural Society*).
Gewerbe-Verein (*Polytechnical Society*).

Erlangen (*Bavaria*)—Physikalisch-Medicinische Gesellschaft (*Physico-Medical Society*).
Universitäts-Bibliothek (*University Library*).

Essen a. d. Ruhr (*Prussia*)—Verein für Thierschutz und Geflügelzucht (*Society for the Prevention of Cruelty to Animals and for the Culture of Fowls*).

Fiume (*Austria*)—K. K. Marine-Akademie (*Imperial Royal Naval Academy*).

Frankfurt am Main (*Prussia*)—Deutsche Malakozoologische Gesellschaft (*German Malakozoologic Society*).
Gartenbaugesellschaft "Flora" (*Horticultural Society "Flora"*).
Senckenbergische naturforchende Gesellschaft (*Senckenberg Naturalists' Society*).
Statistischer Verein (*Statistical Society*).
Zoologische Gesellschaft (*Zoological Society*).

Frankfurt-an-der-Oder (*Prussia*)—Historisch-Statistischer Verein (*Historical Statistical Society*)
Handels-Kammer (*Chamber of Commerce*).

Freiberg (*Saxony*)—Freiberger Alterthums-Verein (*Archæological Society*).
Königlich Sächsische Bergakademie (*Royal Saxonian Mining Academy*).

Freiburg (*Baden*)—Gesellschaft für Beförderung der Naturwissenschaften (*Society for the Advancement of Natural Sciences*).
Grossherz. Blinden-Anstalt (*Grand-ducal Institution for the Blind*).
Redaction des Archivs für Anthropologie (Dr. A. Ecker) (*Archives of Anthropology*).
Universitäts Bibliothek (*University Library*).

Friedberg (*Hesse*)—Blinden-Anstalt (*Institution for the Blind*).
Grossherz. Taubstummen-Anstalt (*Grand-ducal Deaf and Dumb Institute*).

Fulda (*Prussia*)—Verein für Naturkunde (*Natural History Society*).

Fürth (*Bavaria*)—Gewerbe-Verein der Stadt Fürth (*Polytechnical Society*).

Galatz (*Austria*)—Commission Européenne de Danube (*European Commission of the Danube*).

Gera (*Fürstenth. Reuss*)—Gesellschaft der Freunde der Naturwissenschaften (*Society of the Friends of the Natural Sciences*).

Giessen (*Hesse*)—Historischer Verein (*Historical Society*).
Oberhessische Gesellschaft für Natur- und Heilkunde (*Upper Hessian Society of Natural History and Medical Science*).
Universitäts Bibliothek (*University Library*).
Zoologisches Museum (*Zoological Museum*).

Görlitz (*Prussia*)—Gartenbau-Verein für die Ober-Lausitz (*Horticultural Society of Upper Lausitz*).
Gewerbe-Verein (*Polytechnical Association*).
Naturforschende Gesellschaft (*Naturalists' Society*).
Oberlausitzer Gesellschaft der Wissenschaften (*Scientific Society of Upper Lausitz*).
Verein für Geflügelzueht (*Society for Fowl Culture*).
Verein für Hühnerzucht (*Society for the Culture of Poultry*).

Görz (*Austria*)—K. K. Ackerbau Gesellschaft (*Imperial Royal Agricultural Society*).

Göttingen (*Prussia*)—Anthropologischer Verein (*Anthropological Society*).
Königliche Gesellschaft der Wissenschaften (*Royal Society of Sciences*).
Königliche Sternwarte (*Royal Observatory*).
Universitäts-Bibliothek (*University Library*).
Zoologisches Museum (*Zoological Museum*).

Gotha (*Saxe-Koburg-Gotha*)—Geographische Anstalt (*Geographical Institute*).
Herz. Bibliothek der Friedenstein'schen Sammlungen (*Ducal University of the Friedstein Collections*).
Sternwarte (*Observatory*).
Thüringer Gartenbau-Verein (*Thuringian Horticultural Society*).

Graz (*Austria*)—Akademie für Handel und Industrie (*Academy for Commerce and Industry*).
Geognostisch-Montanistischer Verein für Steiermark (*Geognostical Society of Styria*).

Historischer Verein für Steiermark (*Historical Society of Styria*).

K. K. Erstes Staats Gymnasium (*Imperial Royal Supreme State Gymnasium*).

K. K. Steiermarkische Gartenbau-Verein (*Imperial Royal Styrian Horticultural Society*).

Universitaet (*University of Graz*).

K. K. Steirmärkische Landwirthschafts-Gesellschaft (*Imperial Royal Styrian Agricultural Society*).

Naturwissenschaftlicher Verein für Steiermark (*Scientific Society of Styria*).

Steiermärkischer Industrie- und Gewerbe-Verein (*Styrian Industrial and Polytechnical Union*).

Steiermärkische Landes-Ober-Realschule (*Styrian Upper Realschool*).

Steiermärkisches Landschaftliches Joanneum (*Styrian Joanneum*).

Verein der Aerzte in Steiermark (*Physicians' Society of Styria*).

Greifswald (*Prussia*)—Gesellschaft für Pommersche Geschichte und Alterthumskunde (*Society of Pomeranian History and Archæology*).

Universitäts-Bibliothek (*University Library*).

Guben (*Prussia*)—Lausitzer Gewerbe-Vereine (*Lausitz Polytechnical Union*).

Güstrow (*Mecklenburg*)—Verein der Freunde der Naturgeschichte in Mecklenburg (*Society of Friends of Natural History in Mecklenburg*).

Gumbinnen (*Prussia*)—Landwirthschaftlicher Central-Verein für Littauen und Masuren (*Littauen and Masuren Central Agricultural Society*).

Halberstadt—Deutsche ornithologische Gesellschaft (*German Ornithological Society*).

Hall (*Austria*)—Verein zur Geologischen Durchforschung Tirols und Vorarlbergs (*Society for the Geological Survey of Tyrol and Vorarlberg*).

Halle a. d. Saale (*Prussia*)—Deutscher Apotheker-Verein (*German Apothecaries' Association*).

Königliches Ober-Berg-Amt (*Royal Mining Bureau*).

Landwirthschaftlicher Central-Verein für die Provinz Sachsen (*Central Agricultural Union of the Province of Saxony*).

Naturforschende Gesellschaft (*Naturalists' Society*).
Naturwissenschaftlicher Verein für Sachsen und Thüringen (*Scientific Association for Saxony and Thuringia*).
Ornithologische Central-Verein für Sachsen und Thüringen (*Central Ornithological Society of Saxony and Thuringia*).
Redaction der Botanischen Zeitung (*Botanical Gazette*)
Redaction der Natur (Dr. Otto Ule) ("*Nature*").
Thüringisch-Sächsischer Geschichts- und Alterthums-Verein (*Thuringo-Saxonian Historical and Archæological Society*).
Universitäts-Bibliothek (*University Library*).

Hamburg (*Hanse-Town*)—Blinden-Anstalt (*Institution for the Blind*).
Commerz-Bibliothek (*Commercial Library*).
Geographische Gesellschaft (*Geographical Society*).
Handels-Kammer (*Chamber of Commerce*).
Johanneum (*Joanneum*).
Museum Godeffroy (*Museum Godeffroy*).
Naturwissenschaftlicher Verein (*Society of Natural Sciences*).
Norddeutsche Seewarte (*North German Naval Observatory*).
Stadt-Bibliothek (*City Library*).
Sternwarte (*Observatory*).
Thierschutz-Verein (*Society for the Prevention of Cruelty to Animals*).
Verein für Hamburgische Geschichte (*Society for Hamburg's History*).
Verein für Handelsfreiheit (*Free Trade Association*).
Verein für Naturwissenschaftliche Unterhaltung (*Society for Scientific Entertainment*).
Zoologische Gesellschaft (*Zoological Society*).

Hamm (*Prussia*)—Königliches Gymnasium (*Royal Gymnasium*).

Hanau (*Prussia*)—Hanauer Bezirks Verein für Hessische Geschichte und Landeskunde (*Society for Hessian History and Geography of the District of Hanau*).
Wetterauer Gesellschaft für die gesammte Naturkunde (*Wetterauer Association for Natural Sciences in general*).

Hannover (*Prussia*)—Architecten- und Ingenieur-Verein (*Architects and Engineers' Association*).
Gesammt-Verein der Deutschen Geschichts- und Alterthums-Vereine (*Central Union of the German Historical and Archæological Societies*).

Gewerbe-Verein für die Provinz Hannover (*Polytechnical Union of the Province of Hannover*).

Hahn'sche Hofbuchhandlung (*Hahn's Book-store*).

Historischer Verein für Niedersachsen (*Historical Society of Lower Saxony*).

Königliche Oeffentliche Bibliothek (*Royal Public Library*).

Königliche Polytechnische Schule (*Royal Polytechnical School*).

Naturhistorische Gesellschaft (*Society of Natural History*).

Heidelberg (*Baden*)—Astronomische Gesellschaft Grossherz. Gymnasium (*Astronomical Society "Gymnasium"*).

Landwirthschaftlicher Bezirks-Verein (*Agricultural District Union*).

Naturhistorisch-medicinischer Verein (*Society of Natural History and Medical Science*).

Süddeutscher Apotheker-Verein (*South German Apothecaries' Union*).

Universitäts-Bibliothek (*University Library*).

Hermannstadt (*Hungary*)—Siebenbürgischer Verein für Naturwissenschaften (*Transylvanian Society of Natural Sciences*).

Verein für Siebenbürgische Landeskunde (*Transylvanian Geographical Society*).

Hohenheim (*Würtemberg*)—Kön. Wür. Land- und Forstwirthschaftliche Akademie (*Royal Würtemberg Academy of Agriculture and Forest-culture*).

Hohenleuben (*Saxony*)—Voigtländischer Alterthumsforschender Verein (*Voigtlandish Archæological Society.*)

Immenstadt (*Bavaria*)—Alpen Landwirths. Versuchs Station (*Experiment Station for Alpine Agriculture*).

Innsbruck (*Austria*)—Ferdinandeum (*"Ferdinandeum"*).

K. K. Landwirthschafts-Gesellschaft für Tirol und Vorarlberg (*Imperial Royal Agricultural Society of Tyrol and Vorarlberg*).

Naturwissenschaftlich-medicinischer Verein (*Society of Natural and Medical Science*).

Universitäts-Bibliothek (*University Library.*)

Jauer (*Prussia*)—Oekonomisch-patriotische Gesellschaft für das Fürstenthum Schweidnitz und Jauer (*Economical Patriotic Union of the Principality of Schweidnitz and Jauer*).

Jena (*Saxe-Weimar*)—Landwirthschaftliches Institut (*Agricultural Institute*).

Medicinisch-naturwissenschaftliche Gesellschaft (*Society of Medical and Natural Sciences*).

Pharmaceutisch-naturwissenschaftlicher Verein (*Pharmaceutic Society of Natural Science*).

Redaction der Zeitschrift für Deutsche Landwirthe (*Journal for German Agriculturists*).

Statistisches Bureau der Vereinigten Thüringischen Staaten (*Statistical Bureau of the United Thuringian States*).

Universitäts-Bibliothek (*University Library*).

Verein für Thüringische Geschichts- und Alterthumskunde (*Society for Thuringian History and Archæology*).

Karlsruhe (*Baden*)—Badischer Alterthums-Verein (*Baden Archæological Association*).

Gewerbe-Verein (*Polytechnical Union*).

Grossherz. Badisches Polytechnische Schule (*Polytechnical School of the Grand Duchy of Baden*).

Grossherz. Badische Regierung (*Grand-ducal Government of Baden*).

Grossherz. Badisches Statistisches Bureau des Handels-Ministeriums (*Statistical Bureau of the Department of Commerce*).

Grossherz. Centralstelle für die Landwirthschaft (*Grand-ducal Central Bureau of Agriculture*).

Grossherz Gymnasium (*Grand ducal Gymnasium*).

Grossherz. Hof- und Landes-Bibliothek (*Grand-ducal Court and National Library*).

Handels-Kammer (*Chamber of Commerce*).

Naturwissentschaftlicher Verein (*Society of Natural History*).

Kassel (*Prussia*)—Kurhessische Landes-Bibliothek (*Elector Hessian National Library*).

Landwirthschaftlicher Central-Verein (*Central Agricultural Union*).

Malacozoologische Blätter (*Malacozoological Papers*).

Verein für Hessische Geschichte und Landeskunde (*Society of Hessian History and Geography*).

Verein für Naturkunde (*Natural History Society*).

Kiel (*Prussia*)—Blinden-Anstalt (*Institution for the Blind*).

Gesellschaft für die Sammlung und Erhaltung vaterl. Alterthümer (*Society for the Collection and Preservation of Home Antiquities*).

Königlich Sternwarte (*Royal Observatory*).

Ministerial-Kommission zur Untersuchung der Deutschen Meere (*Ministerial-Commission for the Exploration of German Seas*).

Naturwissenschaftlicher Verein für Schleswig-Holstein (*Natural History Society of Sleswick-Holstein*).

Redaction der Schul-Zeitung (*The Scholastic Gazette*).

S. H. L. Gesellschaft für vaterländische Geschichte (*S. H. L. Society for the History of the Country*).

Schleswig-Hohlsteinscher Landwirthschaftlicher Generalverein *Sleswick-Holstein Agricultural General Association*).

Universitäts-Bibliothek (*University Library*).

Verein nördlich der Elbe für Verbreitung naturwissenschaftlicher Kenntnisse (*Association for the Advancement of the Knowledge of Natural Science North of the Elbe*).

Zoologisches Museum der Universität (*Zoological University-Museum*).

Klagenfurt (*Austria*)—Geschichts-Verein für Kärnten (*Historical Society of Carinthia*).

Handels- und Gewerbekammer (*Chamber of Commerce and Trade*).

Kärntnerischer Industrie- u. Gewerbe-Verein (*Carinthian Industrial and Polytechnical Union*).

K. K. Landwirthschafts-Gesellschaft (*Imperial Royal Agricultural Society*).

K. K. Studien-Bibliothek (*Imperial Royal Collegiate Library*).

Naturhistorisches Museum (*Museum of Natural History*).

Klausenburg (*Hungary*)—Erdélyi Muzeum-Egylet.

Klausthal (*Prussia*)—Naturwissensch. Verein "Maja" (*Society of Natural Science "Maja"*).

Koblenz (*Prussia*)—Naturhistorischer Verein (*Natural History Society*).

Koburg (*Saxe-Koburg-Gotha*)—Kunst- und Gewerbe-Verein (*Society of Art and Trade*).

Verein für Naturkunde im Herzogthum Sachsen-Koburg (*Society of Natural Science in the Duchy of Saxe-Coburg*).

Köln (*Prussia*)—Historischer Verein für den Niederrhein (*Historical Society of the Nether Rhine*).

Königsberg (*Prussia*)—Ostpreussische Landwirthschaftliche Centralstelle (*Central Agricultural Bureau of East Prussia*).

Ostpreussische Physikalisch-ökonomische Gesellschaft (*East Prussian Physical-economical Association*).

Preuss. Provinzial-Verein für Blinden-Unterricht (*Prussian Provincial Society for the Instruction of the Blind*).

Universitäts-Bibliothek (*University Library*).

Universitäts-Sternwarte (*University Observatory*).

Kórnik (*near Posen, Prussia*)—Biblioteka Kórnicka (*Library of Kornik*).

Krakau (*Austria*)—Akademija Umiejetno'sci (*Academy of Sciences*).

C. K. Towarzystwo Naukowe Krakowskie.

K. K. Sternwarte (*Imperial Royal Observatory*).

Universytet Krakowski (*Krakau University*).

Sternwarte (*Observatory*).

Kremsmünster (*Austria*)—Sternwarte (*Observatory*).

Laibach (*Austria*)—Historischer Verein für Krain (*Historical Society of Crain*).

Juristische Gesellschaft (*Jurists' Association*).

K. K. Landwirthschafts-Gesellschaft (*Imperial Royal Agricultural Society*).

Landes-Museum (*National Museum*).

Slovenischer Literatur-Verein (*Slovenic Literary Society*).

Landshut (*Bavaria*)—Botanischer Verein (*Botanic Society*).

Historischer Verein für Niederbaiern (*Historical Society of Lower Bavaria*).

Leipzig (*Saxony*)—Dr. Felix Flügel (*Agent Smithsonian Institution*).

Astronomische Gesellschaft (*Astronomical Society*).

Central-Verein Deutscher Zahnärzte (*Central Union of German Dentists*).

Deutsches Central-Museum für Völkerkunde (*German Central Museum of Ethnology*).

Deutsche Morgenländische Gesellschaft (*German Oriental Society*).

F. A. Brockhaus' Verlagsbuchhandlung (*F. A. Brockhaus' Publishing House*).

Fürstlich Jablonowski'sche Geseilschaft (*Prince of Jablonowski's Society*).

Geologische Landesuntersuchung des Königreiches Sachsen (*Geological Survey of the Kingdom of Saxony*).
Handels-kammer (*Chamber of Commerce*).
Königlich Sächsische Gesellschaft der Wissenschaften (*Royal Saxonian Society of Sciences*).
Landwirthschaftlicher Kreisverein (*Agricultural District Union*).
Landwirthschaftliches Institut der Universität Leipzig (*Agricultural Institute of the Leipzig University*).
Leipziger Zweigverein der Gesellschaft für Verreitung von Volksbildung (*Leipsic Branch of the Society for the Diffusion of Knowledge amongst the People*).
Medicinische Gesellschaft (*Medical Society*).
Oeffentliche Handels-Lehranstalt (*Public Commercial Institute*).
Polytechnische Gesellschaft (*Polytechnical Association*).
Redaction des Archivs für Anatomie, Physiologie und wissenschaftliche Medicin (Veit & Co.) (*Archives of Anatomy, Physiology, and Medical Science*).
Redaction der Jahrbücher für wissenschaftliche Botanik (*Annals of Scientific Botany*).
Redaction der Zeitschrift für wissenschaftliche Zoologie (*Journal of Scientific Zoology*).
Redaction des Deutschen Archivs für Klinische Medecin (*German Archives of Clinical Medical Science*).
Stadt-Bibliothek (*City Library*).
Städtische Realschule (*City "Real School"*).
Statistisches Bureau (*Statistical Bureau*).
Taubstummen-Anstalt (*Deaf and Dumb Institute*).
Universitäts-Bibliothek (*University Library*).
Universitäts-Sternwarte (*University Observatory*).
Verein für Anthropologie (*Anthropological Society*).
Verein Deutscher Eisenbahn-Verwaltungen (*German Railroad Managers' Union*).
Verein von Freunden der Erdkunde (*Society of Friends of Geography*).
Verein für Volkskindergärten (*Society of National "Kindergärten*).

Leisnig (*Saxony*)—Geschichts- und Alterthumsforschender Verein (*Historical and Archæological Society*).

Leoben (*Austria*)—K. K. Berg-Akademie (*Imperial Royal Mining Academy*).

Lemberg (*Austria*)—Biblioteka Zakladu Ossolinskich (*Library*).

Liegnitz (*Prussia*)—Landwirthschaftlicher Verein (*Agricultural Society*).

Linz (*Austria*) — Handels- und Gewerbekammer Oberösterreichs (*Chamber of Commerce of Upper Austria*).

K. K. Landwirthschafts-Gesellschaft (*Royal Imperial Agricultural Society*).

Museum Francisco-Carolinum (*Francisco-Carolinum Museum*).

Lübeck (*Hanse-Town*)—Gesellschaft zur Beförderung gemeinnütziger Thätigkeit (*Society for the Advancement of Useful Industry*).

Naturhistorisches Museum (*Museum of Natural History*).

Stadt-Bibliothek (*City Library*).

Verein für lübeckische Geschichte (*Society of Lubeck History*).

Lüneburg (*Prussia*)—Alterthums-Verein (*Archæological Society*).

Naturwissenschaftlicher Verein (*Society of Natural Science*).

Magdeburg (*Prussia*)—Naturwissenschaftlicher Verein (*Society of Natural Science*).

Mainz (*Hesse*)—Grossherzogliche Handels-Kammer (*Grand-ducal Chamber of Commerce*).

Verein zur Erforschung der Rheinischen Geschichte und Alterthümer (*Society for Research in Rhenish History and Archæology*).

Mannheim (*Baden*)—Grossherz. Gymnasium (*Grand-ducal "Gymnasium"*).

Grossherz. Sternwarte (*Grand-ducal Observatory*).

Verein für Naturkunde (*Society of Natural Science*).

Marburg (*Prussia*)—Gesellschaft zur Beförderung der gesammten Naturwissenschaften (*Society for the Advancement of Natural Sciences in general*).

Sternwarte (*Observatory*).

Universitäts-Bibliothek (*University Library*).

Meersburg (*Baden*)—Grossherz. Badische allgem. Taubstummen-Anstalt (*Grand Duchy of Baden General Deaf and Dumb Institute*).

Meiningen (*Saxe-Meiningen*) — Hennebergischer Alterthumsforschender Verein (*Hennebery Archæological Society*).

Verein für Pomologie und Gartenbau (*Pomological and Horticultural Association*).

Meissen (*Saxony*)—Gesellschaft "Isis" (*Society "Isis"*).

Metz (*Lorraine*)—Académie Impériale de Metz (*Imperial Academy of Metz*).

Société d'Histoire Naturelle du Département de la Moselle (*Society of Natural History of the Department of the Moselle*).

Société des Sciences Médicales (*Society of Medical Sciences*)

Mühlhausen (*Alsace*)—Société Industrielle (*Industrial Society*).

München: Munich (*Bavaria*)—Baierische Gartenbau-Gesellschaft (*Bavarian Horticultural Society*).

Geographische Gesellschaft (*Geographical Society*).

Historischer Verein für Oberbaiern (*Historical Society of Upper Bavaria*).

Königl. Baierische Akademie der Wissenschaften (*Royal Bavarian Academy of Sciences*).

Königl. Baierische Statistisches Bureau (*Royal Bavarian Statistical Bureau*).

Königl. Botanischer Garten (*Royal Botanical Garden*).

Königl. General-Quartiermeister-Stab (*Quartermaster-General*).

Königl. Hof- und Staats-Bibliothek (*Royal Court and State Library*).

Königl. Staats-Ministerium (*Royal Department of State*).

Königl. Sternwarte (*Royal Observatory*).

Königl. Taubstummen-Anstalt (*Royal Deaf and Dumb Institute*).

Landwirthschaftlicher Verein (*Agricultural Society*).

Ministerium des öffentlichen Unterrichts (*Department of Public Instruction*).

Polytechnischer Verein (*Polytechnical Society*).

Redaction der Zeitschrift für Biologie (*Journal of Biology*).

Universitäts-Bibliothek (*University Library*).

Münster (*Prussia*)—Landwirthschaftlicher Provinzial-Verein für Westphalen und Lippe (*Agricultural Provincial Society of Westphalia and Lippe*).

Sternwarte (*Observatory*).

Verein für Geschichte und Alterthümer Westphalens (*Society of Westphalian History and Archæology*).

Neisse (*Prussia*)—Katholisches Gymnasium (*Catholic "Gymnasium"*).

Philomathische Gesellschaft (*Philomathic Society*).

Realschule (*"Real School"*).

Neu Titschin (*Austria*)—Landwirthschaftlicher Verein (*Agricultural Society*).

Nordhausen (*Prussia*)—Wissenschaftlicher Verein (*Scientific Association*).

Nürnberg (*Bavaria*)—Baierisches Gewerbe-Museum (*Bavarian Polytechnical Museum*).

Germanisches Museum.

Gewerbe-Verein (*Polytechnical Society*).

Naturhistorische Gesellschaft (*Natural History Society*).

Ofen. See *Budapest.*

Offenbach (*Prussia*)—Grossherzogliche Handels-Kammer (*Grand-ducal Chamber of Commerce*).

Verein für Naturkunde (*Society of Natural Science*).

Oldenburg (*Oldenburg*)—Gewerbe- und Handelsverein (*Chamber of Trade and Commerce*).

Grossherzogliche Bibliothek (*Grand-ducal Library*).

Olmütz (*Austria*)—K. K. Deutsches Gymnasium (*Royal Imperial German Gymnasium*).

K. K. Ober-Realschule (*Royal Imperial Upper "Real School"*).

K. K. Studien-Bibliothek (*Royal Imperial Collegiate Library*).

Sternwarte (*Observatory*).

Osnabrück (*Hannover*)—Historischer Verein (*Historical Society*).

Naturwissenschaftlicher Verein (*Society of Natural Science*).

Passau (*Bavaria*)—Naturhistorischer Verein (*Natural History Society*).

Praktische Gartenbau-Gesellschaft in Baiern (*Practical Horticultural Society of Bavaria*).

Plauen (*Saxony*)—Gymnasium und Realschule (*"Gymnasium and Real School"*).

Verein für Natur- und Heilkunde (*Society of Natural and Medical Science*).

Pola (*Austria*)—K. K. Hydrographisches Depot (*Royal Imperial Hydrographic Depot*).

Posen (*Prussia*)—Naturwissenschaftlicher Verein (*Society of Natural Science*).

Städtische Realschule (*"Real School"*).

Potsdam (*Prussia*)—Landwirthschaftlicher Provinzial-Verein für die Mark Brandenburg und Niederlausitz (*Agricultural Provincial Union of the Province of Brandenburg and Nether Lusatia*).

Verein zur Beförderung des Seidenbaues in der Mark Brandenburg u. der Niederlausitz (*Association for the Promotion of Silk-worm Culture in the Province of Brandenburg and Nether Lusatia*).

Prag (*Austria*) — Böhmische Chemische Gesellschaft (*Bohemian Chemical Association*).

Böhmischer Gewerbe-Verein (*Bohemian Polytechnical Union*).

Deutscher Polytechnischer Verein (*German Polytechnical Union*).

Königlich Böhmische Gesellschaft der Wissenschaften (*Royal Bohemian Society of Sciences*).

Königlich Böhmisches Museum (*Royal Bohemian Museum*).

K. K. Sternwarte (*Royal Imperial Observatory*).

Medicinische Facultät (*Medical Faculty*)

Naturhistorischer Verein "Lotos" (*Natural History Society "Lotos"*).

Schafzüchter-Verein für Böhmen (*Sheep-breeders' Union of Bohemia*).

Universitäts-Bibliothek (*University Library*).

Verein für Geschichte der Deutschen in Böhmen (*Society of the History of the Germans in Bohemia*).

Verein zur Ermunterung des Gewerbsgeistes in Böhmen (*Society for the Encouragement of Industrial Enterprise in Bohemia*).

Premslaff (bei **Labes**) (*Prussia*)—Pommersche Oekonomische Gesellschaft (*Pomeranian Economical Association*).

Pressburg (*Hungary*) — Districts-Handels- und Gewerbe-Kammer (*District Chamber of Commerce and Trade*).

Handels und Gewerbe Kammer.

Verein für Naturkunde (*Society of Natural Science*).

Verein für Natur- und Heilkunde (*Society of Natural and Medical Science*).

Pribram (*Austria*) — K. K. Berg-Direction (*Royal Imperial "Direction of Mines"*).

Proskau—Landwirthschaftliche Akademie (*Agricultural Academy*).

Rastadt (*Baden*) — Grossherzogliches Gymnasium (*Grand-ducal "Gymnasium"*).

Ravensburg (*Würtemberg*)—Deutscher Pomologen-Verein (*German Pomological Society*).

Regensburg (*Bavaria*) — Historischer Verein für die Ober-Pfalz (*Historical Society of the Upper Palatinate*).

K. Baierischer Apotheker-Verein (*Royal Bavarian Apothecaries' Association*).

K. Baierische Botanische Gesellschaft (*Royal Bavarian Botanical Society*).

Zoologisch-Mineralogischer Verein (*Zoological-Mineralogical Society*).

Reichenbach (*Saxony*)—Voigtländ. Verein für Naturkunde (*Voigtland Society of Natural Science*).

Reichenberg (*Austria*)—Verein der Naturfreunde (*Naturalists' Association*).

Reutlingen (*Würtemberg*) — Pomologisches Institut (*Pomological Institute*).

Rostock (*Mecklenburg*) — Mecklenburgischer Patriotischer Verein (*Mecklenburg Patriotic Association*).

Universitäts-Bibliothek (*University Library*).

Rovereto (*Austria*) — I. R. Accademia di Lettere e Scienze degli Agiati.

I. R. Scuola Reale Elisabettina.

St. Pölten (*Austria*) — Nieder.- Oesterr. Landes- Ober-Realschule (*National "Real School" of Lower Austria*).

Salzburg (*Austria*)—K. K. Landwirthschafts-Gesellschaft (*Imperial Royal Agricultural Society*).

Städtisches Museum Carolino-Augusteum ("*Museum Carolino Augusteum*").

Scharssburg (*Austria*)—Gymnasium ("*Gymnasium*").

Schwerin (*Mecklenburg-Schwerin*) — Grossherz. Landes- Vermessungs-Commission (*Grand-ducal Survey*).

Grossherzogliches Statistisches Bureau (*Grand-ducal Statistical Bureau*).

Regierungs-Bibliothek (*Government Library*).

Verein für Mecklenburgische Geschichte und Alterthumskunde (*Society of the History and Archæology of Mecklenburg*).

Sigmaringen (*Prussia*)—Landwirthschaftliche Centralstelle des Vereins zur Beförderung der Landwirthschaft und der Gewerbe für die Hohenzollernschen Lande (*Agricultural Central Bureau for the Promotion of Agriculture and Trade in the States of Hohenzollern*).

Sondershausen (*Schwarzburg-Sondershausen*) — Fürstliche Real-Schule (*Princely "Real School"*).

Fürstlich Schwarzburgisches Gymnasium (*Prince of Schwarzenburg "Gymnasium"*).

Verein zur Beförderung der Landwirthschaft (*Society for the Promotion of Agriculture*).

Speier (*Bavaria*) — Historischer Verein für Rheinbaiern (*Historical Association of Rhenish Bavaria*).

Sternwarte des Königl. Lyceums in Speier (*Observatory of the Royal Lyceum of Speyer*).

Stade (*Prussia*)—Verein für Geschichte und Alterthümer (*Society of History and Antiquities*).

Stettin (*Prussia*) — Entomologischer Verein (*Entomological Society*).

Gesellschaft für pommersche Geschichte und Alterthumskunde (*Society of Pommeranian History and Archæology*).

Strassburg (*Alsace*)—Bibliothèque Municipale de Strasbourg (*Strassburg City Library*).

K. Universitäts- und Landes-Bibliothek (*Royal University and National Library*).

Muséum d'Histoire Naturelle (*Museum of Natural History*).

Société pour la Conservation des Monuments historiques d'Alsace (*Society for the Preservation of Historical Monuments of the Alsace*).

Société des Sciences, Agriculture et Arts de la Basse-Alsace (*Society of Sciences, Agriculture, and Arts of Lower Alsace*).

Société des Sciences Naturelles de Strasbourg. (See *Nancy*.) (*Society of Natural Sciences of Strassburg*.)

Sternwarte (*Observatory*).

Strelitz (*Mecklenburg*) — Verein der Freunde der Naturgeschichte (*Society of the Friends of Natural History*).

Stuttgart (*Würtemberg*)—Seine Majestät der König von Würtemberg (*His Majesty the King of Wurtemberg*).

Central-Leitung des Wohlthätigkeits-Verein in Württemberg (*Central Board of the Charitable Society of Wurtemberg*).

Gartenbau-Gesellschaft "Flora" (*Horticultural Society "Flora"*).

Gesellschaft für die Weinverbesserung in Würtemberg (*Association for the Improvement of Wine culture in Wurtemberg*).

Gewerbe-Verein (*Polytechnical Society*).

Heilgymnastisches Institut. (Dr. Roth.) (*Orthopedic Institute.*)

K. Centralstelle für Gewerbe und Handel (*Royal Central Bureau of Trade and Commerce*).

K. Centralstelle für die Landwirthschaft (*Royal Central Bureau of Agriculture*).

K. Oeffentliche Bibliothek (*Royal Public Library*).

K. Statistisch-topographisches Bureau (*Royal Statistical-Topographical Bureau*).

Königliches Staats Archiv (*Royal Archives of State*).

Verein für Vaterländ. Naturkunde in Würtemberg (*Society of the Natural History of Wurtemberg*).

Verein zur Fürsorge für entlassene Strafgefangene (*Society for Providing for Discharged Prisoners*).

Würtembergischer Alterthums-Verein (*Archæological Society of Wurtemberg*).

Würtembergischer Aerztlicher Verein (*Medical Association of Wurtemberg*).

Württembergischer Thierschutz-Verein (*Wurtemberg Society for the Prevention of Cruelty to Animals*).

Tharand—K. Sächsische Akademie für Land und Forstwirthe (*Academy for Agriculturists and Foresters*).

Thorn (*Prussia*)—Copernicus-Verein für Wissenschaft und Kunst (*Copernicus Association of Science and Art*).

Trient (*Austria*)—Oesterreichischer Alpen-Verein (*Austrian Alpine Club*).

Società Alpina del Trentino (*Alpine Club of Trient*).

Trier (*Prussia*)—Gesellschaft für nützliche Forschungen (*Society for Useful Researches*).

Trieste (*Austria*)—Civico Museo Ferdinando-Massimiliano (*Ferdinand Maximilian City Museum*).

Gartenbau-Gesellschaft des Litorales (*Horticultural Society of the Litorales*).

K. K. Nautische Akademie (Director, H. Littrow) (*Imp. Royal Nautical Academy*).

Observatory.

Società Adriatica di Scienze Naturali (*Adriatic Society of Natural Sciences*).

Società Gabinetta di Minerva.

Società Scientifico Letteraria della Minerva (*Minerva Scientific Literary Society*).

Tübingen (*Würtemberg*)—K. Universitäts-Bibliothek (*Royal University Library*).

Landwirthschaftlicher Verein (*Agricultural Society*).

Ulm (*Würtemberg*)—Naturwissenschaftliche Gesellschaft (*Society of Natural Science*).

Verein für Kunst und Alterthum in Oberschwaben (*Society of Art and Archæology of Upper Swabia*).

Waren (*Mecklenburg*)—Von Maltzansches Naturhistorisches Museum (*Von Malzan Natural History Museum*).

Weiheustephan (*Bavaria*)—Kön Bayer Landwirthsch. Central-Schule (*Central Agricultural School*).

Weilburg (*Prussia*)—Verein Nassauischer Aerzte (*Nassau Physicians' Association*).

Weimar (*Saxe-Weimar*)—Geographisches Institut (*Geographical Institute*).

Verein für Blumistik und Gartenbau (*Society for Flower- and Horticulture*).

Weinsberg (*Würtemberg*)—Historischer Verein für das Würtembergische Franken (*Historical Society of Wurtemberg-Frankenia*).

Wernigerode (*Prussia*)—Harz-Verein für Geschichte und Alterthumskunde (*Society of the Hartz for History and Archæology*).

Wien (Vienna) (*Austria*)—Seine Kaiserlich-Königliche Majestät der Kaiser von Oesterreich - Ungarn (*His Imperial Royal Majesty the Emperor of Austro-Hungary*).

Allgem. Oester. Apotheker-Verein (*Austrian Apothecaries' Association*).

Anthropologische Gesellschaft (*Anthropological Society*).

Handels- und Gewerbekammer (*Chamber of Trade and Commerce*).

Hydrographische Anstalt der Kais. Oesterr. Marine (*Hydrographic Bureau of the Imp. Austrian Navy*).

Kaiserliche Akademie der Wissenschaften (*Imperial Academy of Sciences*).

K. K. Ackerbau-Ministerium (*Imp. Royal Agricultural Department*).

K. K. Central-Anstalt für Meteorologie u. Erd-Magnetismus (*Imp. Royal Central Institute of Meteorology and Terrestrial Magnetism*).

K. K. Gartenbau-Gesellschaft (*Imp. Royal Horticultural Society*).

K. K. Geographische Gesellschaft (*Imperial Royal Geographic Society*).
K. K. Geologische Reichsanstalt (*Imperial Royal Geological "Reichsanstalt"*).
K. K. Gesellschaft der Aerzte (*Imperial Royal Society of Physicians*).
K. K. Handels-Ministerium (*Imp. Royal Department of Commerce*).
K. K. Hofbibliothek (*Imperial Royal Library*).
K. K. Mineralogisches Hof-Museum (*Imp. Royal Mineralog. Museum*).
K. K. Hof- und Staatsdruckerei (*Imp. Royal State Printing Office*).
K. K. Kriegs-Ministerium (*Imp. Royal Department of War*).
K. K. Landwirthschafts-Gesellschaft (*Imp. Royal Agricultural Society*).
K. K. Marine Ober-Commando (*Commander-in-Chief of the Imperial Royal Navy*).
K. K. Militär-Geographisches Institut (*Imp. Royal Military Geographical Institute*).
K. K. Ministerium des Aeussern (*Imp. Royal Department for Foreign Affairs*).
K. K. Ministerium für Cultur und Unterricht (*Imp. Royal Department of Culture and Instruction*).
K. K. Ministerium des Innern (*Imperial Royal Department of the Interior*).
K. K. Naturalien-Kabinet (*Imperial Royal Natural History Museum*).
K. K. Ober-Gymnasium zu den Schotten (*Imp. Royal Higher "Gymnasium zu den Schotten"*).
K. K. Oesterr. Museum für Kunst und Industrie (*Imp. Royal Austrian Museum of Art and Industry*).
K. K. Schottenfelder Ober-Realschule (*Imperial Royal Schottenfeld "Upper Real School"*).
K. K. Statistische Central-Commission (*Imperial Royal Statistical Central Commission*).
K. K. Sternwarte (*Imperial Royal Observatory*).
K. K. Zoologisch-Botanische Gesellschaft (*Imp. Royal Zoological-Botanical Society*).
K. K. Zoologisches Museum (*Imp. Royal Zoological Museum*).

Marine-Section des K. K. Reichs- Kriegs-Ministeriums (*Naval Section of the Imp. Royal Depart. of War*).

Niederösterreichischer Gewerbe-Verein (*Polytechnical Association of Nether Austria*).

Oesterr. Gesellschaft für Meteorologie (*Austrian Society of Meteorology*).

Oesterr. Ingenieur- und Architecten-Verein (*Austrian Engineer and Architects' Association*).

Orientalisches Museum (*Oriental Museum*).

Photographische Gesellschaft (*Photographical Society*).

Polytechnische Gesellschaft (*Polytechnical Society*).

Redaction der Wiener numismatischen Monatshefte (*the Vienna Numismatic Monthly*).

Universitäts-Bibliothek (*University Library*).

Verein zur Verbreitung naturwissenschaftlicher Kenntnisse (*Society for the Diffusion of Knowledge of Natural Science*).

Verein zur Versorgung und Beschäftigung erwachsener Blinden (*Society for the Maintenance and Employment of Blind Adults*).

Wiener Thierschutz-Verein (*Vienna Society for the Prevention of Cruelty to Animals*).

Wissenschaftlicher Club, Eschenbachgasse No. 9 (*Scientific Club*).

Wiesbaden (*Prussia*)—Gewerbe-Verein für das Herzogthum Nassau (*Polytechnical Union for the Duchy of Nassau*).

Verein für Nassauische Geschichte u. Alterthumskunde (*Society for the History and Archæology of Nassau*).

Verein für Naturkunde (*Society of Natural Science*).

Verein Nassauischer Land- und Forstwirthe (*Society of Agriculturists and Foresters of Nassau*).

Wilhelmshaven (*Prussia*)—Marine-Sternwarte (*Naval Observatory*).

Worms (*Hesse*)—Grossherz. Gymnasium (*Grand-ducal "Gymnasium"*).

Grossherz. Hess. Handels-Kammer (*Grand-ducal Hessian Chamber of Commerce*).

Würzburg (*Bavaria*)—Historischer Verein von Unterfranken und Aschaffenburg (*Historical Society of Lower Franconia and Aschaffenburg*).

Physikalisch-Medicinische Gesellschaft (*Physico-Medical Society*).

Polytechnischer Central-Verein (*Central Polytechnical Union*).

Redaction der Jahresberichte der Physiologie (*Editor of the Annual Reports of Physiology*).

Universitäts-Bibliothek (*University Library*).

Zara (*Austria*)—Società Economica di Dalmazia (*Economical Society of Dalmatia*).

Zittau (*Saxony*)—Gewerbe-Verein (*Polytechnical Society*).

Zweibrücken (*Bavaria*)—Naturhistorischer Verein (*Society of Natural History*).

Zwickau (*Saxony*)—Verein für Naturkunde (*Society of Natural Science*).

GREAT BRITAIN AND IRELAND.

ENGLAND.

Alnwick—Berwickshire Naturalists' Club.

Aylesbury—Buckinghamshire Architectural and Archæological Society.

Bath—Bath and West of England Agricultural Society.
Bath Natural History and Antiquarian Field Club.

Bedford—Bedfordshire Architectural and Archæological Society.

Birmingham—Birmingham Natural History and Microscopical Society.
Free Reference Library.
Institution of Mechanical Engineers.

Blackburn—Free Library and Museum.

Boston (*Lincolnshire*)—Working Men's College.

Brighton—Brighton and Sussex Natural History Society.

Bristol—Bristol Institution for the Advancement of Science, Literature, and the Fine Arts.
Bristol Museum and Library.
Bristol Naturalists' Society.

Bury St. Edmunds—Suffolk Institute of Archæology and Natural History.

Cambridge—Cambridge Antiquarian Society.
Cambridge Free Library.
Cambridge Observatory.
Cambridge Philosophical Society.
Journal of Anatomy and Physiology.
University Library.
Woodwardian Museum.

Chester—Chester and Cheshire Architectural and Archæological Society.

Churts (*near Farnham*)—Mr. R. Carrington's Observatory.

Cirencester—Royal Agricultural College.

Cotteswold—Cotteswold Naturalists' Field Club.

Devizes—Wiltshire Archæological and Natural History Society.

Devonshire—Devonshire Association for the Advancement of Science, Literature, and Art.

Doncaster—Yorkshire Institution for the Deaf and Dumb.

Dover—East Kent Natural History Society.

Dudley—Dudley and Midland Geological and Scientific Society and Field Club.

Durham—Observatory.

Eton—Eton College.

Exeter—Albert Memorial Museum.
Devon and Exeter Institution.
Teign Naturalists' Field Club.

Falmouth—Royal Cornwall Polytechnic Society.

Farnboro' Station (*Hants*)—Royal Military College.

Greenwich—Royal Observatory.

Huddersfield—Yorkshire Archæological and Topographical Association.

Hull—Hull Literary and Philosophical Society. } Royal Institution.
Subscription Library. }

Keighley—Keighley Agricultural Society.

Kew—Royal Botanic Gardens.
Observatory.

Leamington—Leamington Philosophical Society.

Leeds—Geological and Polytechnic Society of the West Riding of Yorkshire.
Leeds Philosophical and Literary Society.
Leeds Public Library.
Quarterly Journal of Conchology (9 Wade St.).
Yorkshire College of Science.

Leicester—Leicester Free Library.
Leicester Literary and Philosophical Society.
Leicester Town Museum.

Lewes—Sussex Archæological Society.

Leyton (*Essex*)—Private Observatory of Joseph G. Barclay.

Liverpool—Architectural and Archæological Society.
Derby Museum.
Free Public Library, Museum, and Gallery of Art of the Town of Liverpool.
Geological Society.
Historic Society of Lancashire and Cheshire.
Literary and Philosophical Society.
Liverpool Chemists' Association.
Liverpool Naturalists' Field Club.
Liverpool Polytechnic Society.
Observatory.
Royal Institution.

London—Her Majesty the Queen of Great Britain and Ireland.
William Wesley, Bookseller, 28 Essex Street, Strand (*Agent Smithsonian Institution*).
Aborigines Protection Society.
Aëronautical Society of Great Britain.
Agent-General for New Zealand (7 Westminster Chambers, Victoria St., Westminster S. W.).
Annals and Magazine of Natural History.
Anthropological Institute of Great Britain and Ireland.
Architectural Publication Society.
Art Union of London.
Arundel Society.
Athenæum Club.
Mr. Bishop's Observatory, 18 Ropemaker's St., Finsbury.
Board of Admiralty.
Board of Trade.
British Archæological Association.
British Association for the Advancement of Science.
British Homœopathic Society.
British Horological Institute.
British Meteorological Society.
British Museum.
Camden Society.
Chemical News.
Chemical Society of London.
Chemist and Druggist.
Chronological Institute of London.
Civil and Mechanical Engineers' Society (7 Westminster Chambers).

Cobden Club.
Corps of Royal Engineers.
Department of Practical Art.
Duke of Northumberland.
Early English Text Society.
East India Association.
English Mechanic and Mirror of Science.
Entomological Society.
Entomologist.
Entomologists' Monthly Magazine.
Epidemiological Society.
Ethnological Journal
Prof. W. H. Flower.
Genealogical and Historical Society.
Geological Magazine.
Geological Society of London.
Geologists' Association.
Great Seal Patent Office.
Gresham College.
Guy's Hospital Physical Society.
Hakluyt Society.
Hardwicke's Science-Gossip (M. C. Cooke).
Harveian Medical Society of London.
Howard Association.
Hudson's Bay Company's Library.
Hunterian Society.
The Ibis, a Magazine of General Ornithology.
Institute of Actuaries of Great Britain and Ireland.
Institution of Civil Engineers (25 Great George St.).
Institution of Hydronomical and Nautical Engineers.
Institution of Naval Architects.
Inventors' Institute.
Journal of Applied Science (P. L. Simmonds).
Land and Water.
Library of Committee of Privy Council for Trade.
Library of Corporation of City of London.
Library of the Foreign Office.
Library of the Hon. the East India Company.
Library of the House of Commons.
Library of the House of Lords.
Lindley Library, Royal Horticultural Society, South Kensington.

Linnæan Society.
London, Edinburgh, and Dublin Philosophical Magazine.
London Institution (Finsbury Circus).
London Library (12 St. James' Square, S. W.).
London Mathematical Society.
London Mechanics' Institution.
London and Middlesex Archæological Society.
Medical Society of London.
Meteorological Office, 116 Victoria Street.
Meteorological Society.
Museum of Guy's Hospital.
Museum of Practical Geology.
National Association for the Promotion of Social Science.
Nature.
Nautical Almanac Office.
Numismatic Society.
Obstetrical Society of London.
Odontological Society of Great Britain.
Palæontographical Society.
Palæontological Society.
Palestine Exploration Fund.
Pathological Society.
Pharmaceutical Society.
Philological Society.
Photographic Society.
Physical Society of London.
Popular Science Review.
Post-Office Library and Literary Association.
Quarterly Journal of Science.
Quekett Microscopical Club.
Ray Society.
Record Department, India Office.
Royal Agricultural Society of England.
Royal Archæological Institute of Great Britain and Ireland.
Royal Asiatic Society of Great Britain and Ireland.
Royal Astronomical Society (Burlington House, Piccadilly, W.).
Royal Botanic Society.
Royal College of Physicians of London.
Royal College of Surgeons of England.
Royal Colonial Institute.
Royal Geographical Society of London.

Royal Historical Society (11 Chandos St., Cavendish Square).
Royal Horticultural Society of London.
Royal Humane Society.
Royal Institute of British Architects.
Royal Institution of Great Britain.
Royal Medical and Chirurgical Society.
Royal Microscopical Society.
Royal National Life-Boat Institution.
Royal Society of Literature.
Royal Society of London.
Royal United Service Institution.
Rugby School Natural History Society.
Science and Art Department (South Kensington).
Scientific Opinion.
Silk Supply Association.
Society of Antiquaries of London.
Society of Apothecaries of London.
Society of Biblical Archæology.
Society for the Encouragement of Arts, Manufactures, and Commerce.
Society of Engineers.
Society for the Promotion of Christian Knowledge.
Society for the Propagation of the Gospel in Foreign Parts.
Society of Public Analysts.
Society of Telegraph Engineers.
St. Bartholomew's Hospital.
Statistical Society of London.
Surrey Archæological Society.
Syro-Egyptian Society.
Trübner & Co., Booksellers (57 and 59 Ludgate Hill).
University College.
Victoria Institute; or Philosophical Society of Great Britain.
Worshipful Company of Clockmakers.
Zoological Record Association.
Zoological Society of London.
Zoologist.

Macclesfield—Macclesfield Society for Acquiring Useful Knowledge.

Maidstone—Kent Archæological Society.

Manchester—Chetham's Library.
Geological Society.
Lancashire Independent College.
Literary and Philosophical Soc. of Manchester.
Manchester Field Naturalists' Society.
Manchester Free Library and Museum.
Manchester Literary Club.
Manchester Scientific Students' Association.
Numismatic Society.
Owen's College.

Newcastle-upon-Tyne—Antiquarian Society.
College of Physical Science.
Institute of Mining and Mechanical Engineers.
Literary and Philosophical Society.
Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne.
Reading Room.
Tyneside Naturalists' Field Club.

Norwich—Norfolk and Norwich Archæological Society.
Norfolk and Norwich Museum.
Norfolk and Norwich Naturalists' Society.

Nottingham—Free Library and Museum of the Borough of Nottingham.
Nottingham Literary and Philosophical Society.
Nottingham Mechanics' Institution.
Nottingham School of Art.
United Lunatic Asylum.

Oxford—Ashmolean Society.
Bodleian Library.
Magdalen College.
Museum of Natural History.
Oxford Architectural and Historical Society.
Oxford Free Library.
Oxford University.
Oxford University Entomological Society.
Oxford University Observatory.
Radcliffe Library.
Radcliffe Observatory.
Savilian Observatory.

Penzance—Natural History and Antiquarian Society.
Penzance Public Library.
Royal Geological Society of Cornwall.

Plymouth—Plymouth Institution and Devon and Cornwall Natural History Society.
Plymouth Museum.

Portsmouth—Royal Naval College.

Richmond—Richmond and North Riding Naturalists' Field Club.
Kew Observatory.

Rugby—Natural History Society of Rugby School.

Ryde (*Isle of Wight*)—Philosophical and Scientific Society.

St. Albans—St. Albans Architectural and Archæological Society.

Salford—Salford Borough Royal Museum and Library.
Town Council of Salford.
Working-Men's College.

Salisbury—Blackmore Museum.

Sandhurst—Royal Military College.

Sheffield—Literary and Philosophical Society.

Shrewsbury—Shropshire and North Wales Natural History and Antiquarian Society.

Southampton—Hartley Institution.
Ordnance Trigonometrical Survey of Great Britain and Ireland.
South of England Literary and Philosophical Society.

South Shields—Public Free Library.

Stonyhurst—Stonyhurst College.

Taunton—Somersetshire Archæological and Natural History Society.

Teignmouth—Teign Naturalists' Field Club.

Torquay—Natural History Society.

Truro—Miners' Association of Cornwall and Devon.
Royal Institution of Cornwall.

Twickenham—Twickenham Economic Museum.

Warrington—Warrington Museum.

Warwick—Warwickshire Natural History and Archæological Society.

Watford—Watford Natural History Society and Hertfordshire Field Club.

Whitby—Literary and Philosophical Society.

Woolhope—Woolhope Naturalists' Field Club.

Woolwich—Royal Artillery Institution.
Royal Military Academy.

Wycombe—High Wycombe Natural History Society.

York—Yorkshire Agricultural Society.
Yorkshire Philosophical Society.

IRELAND.

Armagh—Observatory.
Public Library.

Belfast—Belfast Institution.
Belfast Naturalists' Field Club.
Chemico-Agricultural Society of Ulster.
Flax Supply Association.
Natural History and Philosophical Society.
North-East Agricultural Association.
Queen's College.

Cork—Cuvierian and Archæological Society.
Library of Queen's College.
Royal Cork Institution.

Dublin—Catholic College of Ireland.
Catholic Institution for the Deaf and Dumb.
Chemical Society of Dublin.
Deaf and Dumb Institution of Cobla.
Dublin University.
Geological Survey of Ireland.
Institution of Civil Engineers of Ireland.
Institution for Deaf and Dumb (Claremont).
Library of Trinity College.
National Association for Promoting the Education of the Deaf and Dumb Poor of Ireland.
Observatory.
Royal Agricultural Society.
Royal Dublin Society.
Royal Geological Society of Ireland.
Royal Irish Academy.
Royal Zoological Society of Ireland.

Galway—Library of Queen's College.

Kilkenny—Royal Historical and Archæological Association of Ireland.

Londonderry—Magee College.

Maynooth—St. Patrick's College.

Parsonstown—Lord Rosse's Observatory.

SCOTLAND.

Aberdeen—Observatory.
Philosophical Society.
University.

Alloa—Society of Natural Science and Archæology.

Dumfries—Dumfriesshire and Galloway Natural History and Antiquarian Society.

Edinburgh—Board of Northern Lighthouses.
Botanical Society.
Caledonian Horticultural Society.
Edinburgh Geological Society.
Edinburgh Watt Institution and School of Arts.
Faculty of Advocates.
General Board of Lunacy.
Geological Survey of Scotland.
Highland and Agricultural Society of Scotland.
Horological Society of Edinburgh.
Medico-Chirurgical Society of Edinburgh.
Meteorological Society of Scotland.
Pharmaceutical Society (North British Branch).
Royal Botanic Garden of Edinburgh.
Royal College of Physicians.
Royal Institution for Encouragement of Fine Arts in Scotland.
Royal Observatory.
Royal Physical Society.
Royal Scottish Society of Arts.
Royal Society of Edinburgh.
Scottish Arboricultural Society.
Society of Antiquaries of Scotland.
Society of Writers to H. M. Signet.
University Library.

Glasgow—Andersonian Institute.
Anderson's University.
Archæological Society.
Geological Society.

Glasgow College.
Glasgow Medical Journal.
Glasgow and West of Scotland Medical Association.
Institution of Engineers and Shipbuilders in Scotland.
Natural History Society of Glasgow.
Observatory.
Philosophical Society.

Kirkwall—Orkney Antiquarian and Natural History Society.

Montrose—Montrose Natural History and Antiquarian Society.

Peebles—The Chambers Institution.

Perth—Murray Royal Institution.
Perthshire Society of Natural Science.

St. Andrews—University Library.

WALES.

Swansea—Royal Institution of South Wales.
South Wales Institute of Engineers.

Tenby—Cambrian Archæological Association.

GREECE.

Athens—Cercle Littéraire "Byron."
National Library of Greece.
National University.
Natural History Museum of the University of Athens.
Observatory.
Royal Library.
Société Archéologique d'Athènes (*Archæological Society*).
Société Littéraire le Parnasse (*Literary Society*).

ICELAND.

Akuveyvi—Public Library.

Reykjavik—Islands Stiptsbókasafn (*Library of the Icelandic Diocese*).

Hit Islenzka Bókmentafèlag (*Literary Society of Iceland*).

National Library of Iceland.

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ITALY.

Arezzo (*Tuscany*)—Accademia Valdarnese del Poggio (*Valdarnese Academy*).

Bergamo—Accademia Carrara di Belle Arti (*Carrara Academy of the Fine Arts*).
Ateneo Bergamo. (*Atheneum.*)
Municipio di Bergamo (*City Government*).
Società Industriale Bergamasca (*Industrial Society*)

Bologna—Accademia delle Scienze dell' Instituto di Bologna (*Academy of Science of the Institute of Bologna*).
Arch. per la Zoologia, l'Anatomia e la Fisiologia (*Arch. for Zoology, Anatomy, and Physiology*).
Gabinetto di Anatomia dell' Università (*Cabinet of Anatomy of the University*).
Museo di Geologia dell' Università (*Museum of Geology of the University*).
Osservatorio Astronomico (*Astronomical Observatory*).
Repertorium Italicum di Bianconi (*Italian Index of Bianconi*).
Scuola Anatomica di Bologna (*Anatomical School*).
Società Agraria della Provincia di Bologna (*Agrarian Society of the Province of Bologna*).
Società Medico-Chirurgica (*Medico-Chirurgical Society*).
Università di Bologna (*University*).

Brescia—Ateneo di Brescia (*Atheneum*).
R. Instituto Tecnico (*Technical Institute*).

Cagnola—Fondazione Scientifica (*Scientific Institute*).

Catania—Accademia Gioenia di Scienze Naturali (*Gioneia Academy of Natural Sciences*).

Cesena—Comizio Agrario del Circondario di Cesena (*Agricultural Society of the environs of Cesena*).

Firenze (Florence)—Biblioteca Marucelliana (*Marucelliana Library*).

Biblioteca Nazionale (*National Library*).
Biblioteca Riccardiana (*Riccardiana Library*).
Biblioteca di Sua Maesta il Re d'Italia (*Library of His Majesty the King of Italy*).
Istituto di Studi Superiori in Firenze (*Institute of Higher Studies*).
Osservatorio Astronomico (*Astronomical Observatory*).
Museo Nazionalo di Antropologia e di Ethnologia (*National Museum of Anthropology and Ethnology*).
Nuova Antologia di Firenze (*New Anthology of Florence*).
Reale Accademia della Crusca (*Royal Academy of Crusca*).
R. Accademia Economico-agraria dei Georgofili (*Royal Economico-Agrarian Academy of Georgofili*).
R. Comitato Geologico d'Italia (*Royal Geological Committee of Italy*).
Reale Museo di Fisica e Storia Naturale di Firenze (*Royal Museum of Physics and Natural History*).
R. Società Toscana di Orticoltura (*Royal Tuscan Society of Horticulture*).
Osservatorio del R. Museo (*Observatory of the Royal Museum*).
Società Entomologica Italiana (*Italian Entomological Society*).
Società Italiana di Antropologia e di Etnologia (*Italian Society of Anthropology and Ethnology*).

Forli—Direzione dell' Industriale Italiano (Febo Gherardi) (*The Industrial Italian*).

Genova (Genoa)—Accademia delle Scienze, Lettere ed Arti (*Academy of Science, Letters, and Arts*).
Accademia Medico-chirurgica di Genova (*Medico-Chirurgical Academy of Genoa*).
Museo Civico di Storia Naturale (*Civic Museum of Natural History*).
Observatorio della R. Università (*Observatory of the Royal University*).
Officio Idrografico della R. Marina (*Hydrographical Office of the Royal Marine*).
R. Istituto di Sordo-Muti (*Royal Institute for the Deaf and Dumb*).
R. Istituto Tecnico e di Marina (*Royal Technical and Marine Institute*).
R. Scuola Superiore Navale (*Royal Naval High School*).
R. Scuola di Marina (*Royal Marine School*).
R Università (*Royal University*).

Società di Letture e Conversazioni Scientifiche (*Society of Letters and Scientific Conversation*).

Società Ligure di Storia Patria (*Ligurian Society of Native History*).

Ufficio Idrografico della Regia Marina (*Hydrographic Office of the Royal Navy*)

Jesi—Comizio Agrario (*Agricultural Society*).

Lucca—Reale Accademia Lucchese di Scienze, Lettere ed Arti (*Lucchese Academy of Science, Letters, and Arts*)

Mantova (*Mantua*) — R. Accademia Virgiliana (*Royal Virgilian Academy*).

Messina—Reale Accademia Carolina (*Royal Carolina Academy*).

Milano—Ulrich Hoepli, Bookseller, Galleria de Christoforio 59 & 60 (*Ulrich Hoepli, Bookseller, Christoforio Gallery* 59 & 60), *Agent Smithsonian Institution*).

Accademia Fisio-medico-statistica di Milano (*Physico-Medico-Statistical Academy of Milan*).

Accademia Scientifico-Letteraria (*Scientific Literary Academy*).

Biblioteca Ambrosiana (*Ambrose Library*).

Biblioteca Nazionale di Brera (*National Library of Brera*).

Collegio degli Avvocati.

Collegio degli Ingegneri ed Architetti (*College of Engineering and Architecture*).

Direzione dell' Italia Agricole (*The Italian Husbandman*).

Municipio di Milano (*City Government*).

Museo Civico di Storia Naturale (*Civic Museum of Natural History*).

Museo di Storia Naturale dei fratelli Villa (*Museum of Natural History of the Brothers Villa*).

Ospitale Maggiore di Milano (*Hospital of Milan*).

Reale Accademia di Belle Arti (*Royal Academy of Fine Arts*).

Reale Istituto Lombardo di Scienze e Lettere (*Royal Institute of Science and Letters*).

Reale Istituto dei Sordo-muti (*Royal Institute for the Deaf and Dumb*).

R. Istituto Tecnico Superiore (*Royal Technical High School*).

Reale Osservatorio Astronomico di Brera (*Royal Astronomical Observatory of Brera*).

R. Scuola Superiore di Agricoltura (*Royal High School of Agriculture*).

R. Scuola Superiore di Medicina Veterinaria (*Royal High School of Veterinary Medicine*).
Società Agraria di Lombardia (*Agrarian Society of Lombardy*).
Società d'Incoraggiamento di Arti e Mestieri (*Society for the Promotion of Arts and Trades*).
Società Italiana di Scienze Naturali (*Italian Society of Natural Sciences*).
Società Patriotica (*Patriotic Society*).
Società Storica Lombardia (*Lombardian Historical Society*).

Modena—Regia Accademia di Scienze, Lettere ed Arti (*Royal Academy of Sciences, Letters, and Arts*).
Osservatorio (*Observatory*).
Società Medico-Chirurgica in Modena (*Medico-Chirurgical Society*).
Società dei Naturalisti in Modena (*Society of Naturalists*).
Stazione Agraria (*Agrarian Station*).
Università di Modena (*University*).

Moncalieri—Osservatorio del R. Collegio C. Alberto (*Observatory of the Royal College C. Alberto*).

Napoli (Naples)—Accademia degli Aspiranti Naturalisti (*Academy for Naturalists*).
Accademia Pontaniana (*Pontaniana Academy*).
Biblioteca Nazionale (*National Library*).
Biblioteca Provinciale (*Provincial Library*).
Istituto di Belle Arti di Napoli (*Neapolitan Institute of Fine Arts*).
Museo Nazionale de Napoli (*Neapolitan National Museum*).
Reale Accademia di Archeologia, Lettere e Belle Arti (*Royal Academy of Archæology, Letters, and Fine Arts*).
Reale Accademia Ercolanese di Archeologia (*Royal Ercolanese Academy of Archæology*).
Reale Accademia Medico-Chirurgica (*Royal Medico-Chirurgical Academy*).
Reale Accademia dello Scienze e Belle Lettere (*Royal Academy of Science and Belles-Lettres*).
R. Istit. d'Incoraggiamento alle Scienze Naturali, Economiche e Tecnologiche (*Royal Academy for the Promotion of Natural, Economical, and Technological Sciences*).
R. Orto Botanico di Napoli (*Royal Botanical Garden*).

R. Osservatorio Meteorologico Vesuviano (*Royal Meteorological Vesuvian Observatory*).
R. Scuola Superiore di Medicina Veterinaria (*Royal High School of Veterinary Medicine*).
Società Reale di Napoli (*Royal Society*).
Stazione Zoologica di Napoli (*Zoological Station*).
Università (*University*).

Padova (Padua)—Osservatorio Astronomico dell' Università (*Astronomical Observatory of the University*).
Reale Accademia di Scienze, Lettere ed Arti di Padova (*Royal Academy of Science, Letters, and Arts*).
Regia Università di Padova (*Royal University*).
Società d'Incoraggiamento in Padova (*Society of Encouragement*).

Palermo—Accademia Palermitana di Scienze e Lettere (*Palermitan Academy of Science and Letters*).
Biblioteca Nazionale (*National Library*).
R. Istituto Tecnico (*Royal Technical Institute*)
R. Osservatorio (*Royal Observatory*).
Società di Acclimazione e di Agricoltura in Sicilia (*Society of Acclimatation and Agriculture in Sicily*).
Società degli Spettroscopisti Italiani (*Society of Italian Spectroscopists*).

Parma—Biblioteca Nazionale (*National Library*).
R. Orto Botanico (*Royal Botanical Garden*).
R. Osservatorio Astronomico (*Royal Astronomical Observatory*).

Pavia—Accademia Malaspina (*Malaspina Library*).
R. Università (*Royal University*).

Pesaro—Accademia Agraria di Pesaro (*Agrarian Academy*).
Osservatorio Meteorologico e Magnetico Valerio (*Valerio Meteorological and Magnetic Observatory*).

Pisa—Direzione del Nuovo Giornale Botanico Italiano (*The New Italian Botanical Journal*).
R. Scuola Normale Superiore (*Royal Normal High School*).
Società Toscana di Scienze Naturali (*Tuscan Society of Natural Sciences*).
Università (*University*).

Pistoja—R. Accademia di Scienze, Lettere ed Arti (*Royal Academy of Sciences, Letters, and Arts*).

Ravenna—Accademia di Belle Arti (*Academy of Arts*).
Società Ravennate (*Ravenna Society*).

Roma—Accademia Romana di Archeologia (*Roman Academy of Archæology*).
Biblioteca Vaticana (*Vatican Library*).
British Academy of Fine Arts.
British and American Archæological Society.
Corrispondenza Scientifica in Roma (*Scientific Correspondence in Rome*).
Direttore del R. Orto botanico (*Director of the Botanical Garden*).
Direzione dell' Giornale del Genio Civile (*The Genio Civile*).
Direzione dell' Revista Scientifico-Industriale (*The Scientific Industrial Review*).
Direzione dell' Periodico di Numismatica e Sfragistica per la Storia d'Italia (M. C. Strozzi) (*The Periodical on Numismatics and Engravings*).
Istituto de Corrispondenza Archeologica (*Archæological Corresponding Institute*).
Istituto Scientifico della R. Università (*Scientific Institute of the Royal University*).
Ministero di Agricoltura, Industria e Commercio (*Ministry of Agriculture, Manufactures, and Commerce*).
Ministero delle Finanze (*Ministry of Finance*).
Ministero della Guerra (*Ministry of War*).
Ministero dell' Interno (*Ministry of the Interior*).
Ministero dell' Istruzione Pubblica (*Ministry of Public Instruction*).
Ministero dei Lavori Pubblici (*Ministry of Public Works*).
Ministero della Marina (*Ministry of Marine*).
Ospedali (*Hospital*).
Osservatorio Astronomico del Collegio Romano (*Astronomical Observatory of the Roman College*).
Reale Accademia dei Lincei (*Royal Academy of Lincei*).
R. Istituto Fisio-Patologico di Roma (*Royal Institute of Physio-Pathology of Rome*).
R. Comitato Geologico d'Italia (*R. Geological Committee of Italy*).
R. Scuola di applicazione degli Ingegneri (*Royal School for Practical Engineering*).

Società Geografica Italiana (*Italian Geographical Society*).
Società Italiana delle Scienze (*Italian Society of Sciences*).
Ufficio di Statistica Generale (*Office of General Statistics*).

Siena—R. Accademia dei Fisiocritici (*Royal Acad. of Critical Physiology*).
Università (including Osservatorio) (*University—including Observatory*).

Spezia—Direzione d'artiglieria e torpedini. (*The Directory of Artillery and Torpedoes.*)

Torino (Turin)—Accademia Reale di Agricoltura (*Royal Academy of Agriculture*).
Accademia Reale Medico-Chirurgica (*Royal Academy of Medico-Chirurgical Science*).
Accademia Reale delle Scienze (*Royal Academy of Science*).
Circolo Geografico Italiano (*Italian Geographical Circle*).
Direzione de Cosmos in Torino (Guido Cora) (*Editor of Cosmos*).
R. Accademia Albertina di Belle Arti (*Royal Albertina Academy of Fine Arts*).
R. Accademia di Medicina. (*Royal Academy of Medicine*).
R. Museo Industriale Italiano di Torino (*Royal Industrial Museum of Turin*).
R. Scuola d'applicazione per gli Ingegneri (*Royal School of Application for Engineers*).
R. Scuola Superiore di Medicina Veterinaria (*Royal High School of Veterinary Medicine*).
Regia Deputazione Sovra gli Studii di Storia Patria (*Royal Commission on the Study of Native History*).
Regio Museo di Storia Naturale (*Royal Museum of Natural History*).
Regio Osservatorio dell' Università (*Royal Observatory of the University*).
Scuola di Guerra (*School of War*).
Società degli Ingegnere e degli Industriale (*Society of Engineers and Manufacturers*).
Università (*University*).

Treviso—R. Istituto Tecnico (*Royal Technical Institute*).

Udine—Associazione Agraria Friulana (*Friuli Agrarian Association*).
R. Istituto Tecnico (*Royal Technical Institute*).

Stazione Sperimentale Agraria (*Agrarian Experimental Station*).

Venezia (Venice)—Associazione Veneta di Utilità Publica (*Venitian Association for Public Utility*).

Ateneo Veneto (*Venetian Athenæum*).

Biblioteca Marciana (*Marciana Library*).

Mechitaristen-Collegium (*Mechitaristen College*).

R. Accademia di Belle Arti (*Royal Academy of Fine Arts*).

R. Istituto Veneto di Scienze, Lettere ed Arti (*Venetian Institute of Science, Letters, and Arts*).

Società Veneto-Trentina di Scienze Naturali (*The Trentina Venetian Association of Natural Science*).

Verona—Accademia d'Agricoltura, Commercio ed Arti di Verona (*Academy of Agriculture, Commerce, and Arts of Verona*).

Biblioteca Communale. (*City Library.*)

Vicenza—Accademia Olimpica di Agricoltura, Scienze, Lettere ed Arti (*Olympic Academy of Agriculture, Science, Letters, and Arts*).

Biblioteca Publica (*Public Library*).

NETHERLANDS (HOLLAND).

Amsterdam (*Noord-Holland*)—Frederic Muller. (Heerengracht, K. K. No. 130) (*Agent Smithsonian Institution*).

Genootschap ter Bevordering der Natur-, Genees- en Heelkunde (*Society for Promoting Natural, Medical, and Chirurgical Science*).

Koninklijke Akademie van Wetenschappen (*Royal Academy of Sciences*).

Koninklijk Zoologisch Genootschap "Natura Artis Magistra" (*Royal Zoological Society*).

Maatschappij: Tot Bevordering der Bouwkunst (*Society for the Encouragement of Architecture*).

Maatschappij: Tot Nut van't Algemeen (*Society for the benefit of all Classes*).

Rijks Akademie van Beeldende Kunsten (*Royal Academy of Fine Arts*).

Stadsbibliotheek (*City Library*).

Vereeniging voor Statistiek in Nederland (*Statistical Association of the Netherlands*).

Vereeniging voor Volksvlijt (*Association for Popular Industry*).

Wiskundig Genootschap: "Onvermoeide arbeid komt alles te boven" (*Mathematical Society: "Untiring industry overcomes all"*).

Arnhem (*Gelderland*)—Natuurkundig Genootschap "Tot Nut en Vergenoegen" (*Natural History Society: "Utility and Amusement"*).

Openbare Bibliotheek (*Public Library*).

Breda (*Noord-Brabant*)—Koninklijke Militaire Akademie (*Royal Military Academy*).

Deventer (*Overijssel*)—Openbare Bibliotheek (*Public Library*).

'sGravenhage (The Hague) (*Zuid-Holland*)—Bureau voor Statistiek (*Statistical Bureau*).

Government of the Netherlands.

Haagsch Genootschap tot Verdediging van den Christelijken Godsdienst (*Hague Society for the Vindication of the Christian Religion*).

Koninklijke Bibliotheek (*Royal Library*).

Koninklijk Instituut van Ingenieurs (*Royal Institute of Engineers*).

Koninklijk Instituut voor de Taal-, Land- en Volkenkunde van Nederlandsch Indië (*Royal Institute for Philology, Geography, and Ethnography of Dutch India*).

Koninklijk Zoologisch-Botanisch Genootschap te 'sGravenhage (*Royal Zoological-Botanical Society*).

Groningen—Academia Groningana (*Groningen Academy*).

Genootschap ter Bevordering der Natuurkundige Wetenschappen (*Society for the Advancement of Natural Sciences*).

Genootschap pro excolendo Jure Patrio (*Society for the Cultivation of National Jurisprudence*).

Instituut voor Doofstommen (*Institute for the Deaf and Dumb*).

Harlem (*Noord-Holland*)—Bureau Scientifique Central Néerlandais à Harlem (*Scientific Bureau of Central Netherlands*).

Hollandsche Maatschappij van Wetenschappen (*Society of Sciences of Holland*).

Nederlandsche Maatschappij ter Bevordering van Nijverheid (*Society for the Promotion of Industry*).

Stadsbibliotheek (*City Library*).

Teyler's Stichting. (*Teyler's Institution.*)

'sHertogenbosch (*Noord-Brabant*)—Provinciaal Genootschap van Kunsten en Wetenschappen in Noord-Brabant (*Provincial Society of Arts and Sciences*).

Hoorn (*Noord-Holland*)—Societas Medico-Physica Hornana (*Medico-Physical Society*).

Cercle Agricole et Horticole (*Agricultural and Horticultural Society*).

Luxembourg (*Luxembourg*)—Institut Luxembourgeois: Section Historique (Ci-devant Société Archéologique du Grand-Duché) (*Luxemburg Institute: Historical Division*).

Institut Luxembourgeois: Section des Sciences Naturelles et Mathematiques (Ci-devant Société des Sciences Naturelles) (*Luxemburg Institute: Division of Natural Sciences and Mathematics*).

Société de Botanique du Grand-Duché de Luxembourg (*Botanical Society of the Grand Duchy of Luxemburg*).

Leeuwarden (*Friesland*)—Friesch Genootschap voor Geschied-Oudheid- en Taalkunde (*Friesland Society of History, Antiquity, and Philology*).

Leiden (*Zuid-Holland*)—Academia Lugduno-Batava.

Maatschappij van Nederlandsche Letserkunde (*Society of Literature of the Netherlands*).

Nederlandsche Botanische Vereiniging (*Netherlands Botanical Association*).

Nederlandsche Entomologische Vereeniging (*Entomological Society of the Netherlands*).

Rijks Ethnographisch Museum (*Royal Ethn. Museum*).

Rijks Museum van Natuurlijke Geschiedenis (*Royal Museum of Natural History*).

Rijks Museum van Oudheden (*R. Museum of Antiquities*).

Rijks Observatorium (*Royal Observatory*).

Rijks Herbarium (*Royal Herbarium*).

Stolpiaansch Legaat (*Stolp's Legacy*).

Maestricht—Vereeniging ter Bevordering van Tuin- en Landbouw (*Association for the Advancement of Horticulture and Agriculture*).

Middelburg (*Zeeland*)—Zeeuwsch Genootschap van Wetenschappen (*Zealand Society of Sciences*).

Provinciale Bibliotheek van Zeeland (*Provincial Library*).

Rotterdam (*Zuid Holland*)—Bataafsch Genootschap van Proefondervindelijke Wijsbegeerte (*Batavian Society of Experimental Philosophy*).

Inrigting voor Doofstommen-Onderwijs (*Institute for Deaf and Dumb*).

Nederlansche Yacht-Club.

Schiedam (*Zuid-Holland*)—Natuurkundige Vereeniging Martinet (*Natural History Society: "Martinet"*).

Utrecht (*Utrecht*)—Academia Rheno-Trajectina.

Archiv für holländische Beiträge zur Natur- und Heilkunde (*Archives for Hollandian Contributions to Natural and Medical Science*).

Historisch Genootschap (*Historical Society*).

Koninklijk Nederlandsch Meteorologisch Instituut (*Royal Dutch Meteorological Institute*).

Observatorium (*Observatory*).

Provinciaal Utrechtsch Genootschap van Kunsten en Wetenschappen (*Provincial Society of Arts and Sciences*).

Rijks Veeartsenijschool (*Royal Veterinary School*).

Utrechtsche Hoogeschool (*High School*).

Zwolle (*Overijssel*) — Overijsselsche Vereeniging tot Ontwikkeling van Provinciale Welvaart (*Overyssel Society for Promotion of Provincial Welfare*).

Vereeniging tot beoefening van Overijsselsch Regt en Geschiedenis (*Society for the Cultivation of Overyssel Jurisprudence and History*).

Vriend van den Landman (*Friend of the Agriculturist*).

NORWAY.

Arendal—Arendals-Museum (*Arendal Museum*).

Bergen—Bergenske Museum (*Bergen Museum*).
Observatoriet (*Observatory*).

Christiania—Bureau of Statistics.
Foreningen til Norske Fortidsmindesmœrkers Bevaring (*Society for the Preservation of Norwegian Antiquities*).
Kongelige Norske Frederiks Universitetet (*R. Norwegian Frederick University*).
Kongelige Selskabet for Norges Vel (*R. Society for the progress and prosperity of Norway*).
Kristiania Blindeinstitut (*Institution for the Blind*).
Medicinske Selskab (*Medical Society*).
Militære Samfund (*Military Society*).
Ministère de l'Interieur du Gouvernement Royal de Norvege: Division des Recherches géologiques en Norvège (*Interior Department of the R. Norwegian Government; Division for Geological Research*).
Ministère de l'Interieur du Gouvernement Royal de Norvege: Division topographique et hydrographique (*Interior Department of the R. Norwegian Government: Topographic and Hydrographic Division*).
Norske Historiske Forening (*Norwegian Historical Society*).
Norske Meteorologiske Institut (*Norwegian Meteorological Institution.*)
Norske Oldskrift-Selskab (*Norwegian Antiquarian Society*).
Norske Sagförer-Forening (*Norwegian Lawyer's Society*).
Norske Tourist-Forening (*Norwegian Tourist's Society*).
Physiographiske Forening (*Physiographic Society*).
Polytekniske Forening (*Polytechnic Society*).
Selskabet for Folkeoplysningens Fremme (*Society for Development of Popular Instruction*).
Theologiske Forening (*Theological Society*).
Universitets Observatoriet i Christiania (*Observatory of the University*).
Videnskabs-Selskabet i Christiania (*Scientific Society*).

Stavanger—Norske Missions-Selskab (*Norwegian Missionary Society*).

Trondhjem (Drontheim)—Kongelige Norske Videnskabs-Selskabet (*R. Norwegian Society of Science*).

PORTUGAL.

Coimbra—Instituto de Coimbra (*Institute of Coimbra*).
Observatory.
Universidade (*University*).

Evora—Bibliotheca Publica (*Public Library*).

Lisböa (Lisbon)—Academia Real das Sciencias (*Royal Academy of Sciences*).
Academia des Bellas Artes (*Academy of Fine Arts*).
Associação dos Engenheiros Civis Portuguizes (*Association of Portuguese Civil Engineers*).
Biblioteca Nacional (*National Library*).
Commissão Central Permanente de Geographia (*Central Permanent Commission of Geography*).
Commissão Geologica de Portugal (*Geological Commission of Portugal*).
Escola da Exercito (*Military School*).
Escola Medico-cirurgica (*Medico-Chirurgical School*).
Escola Naval (*Naval School*).
Escola Polytechnica (*Polytechnic School*).
Instituto Industrial de Lisboa (*Industrial Institute*).
Instituto Real de Agricultura (*General Institute of Agriculture*).
Museo de Lisboa (*Lisbon Museum*).
Museo Nacional das Colonias (*National Museum of the Colonies*).
Observatorio Astronomico da Tapada de Alcantara (*Astronomical Observatory of Tapada of Alcantara*).
Observatorio do Infante D. Luiz (*Observatory of the Infant D. Luiz*).
Observatorio Meteorologico na Escola Polytechnica (*Meteorological Observatory of the Polytechnical School*).
Real Associação Central de Agricultura Portugueza (*R. Central Association of Portuguese Agriculture*).
Real Conservatorio de Musica (*R. Conservatory of Music*).
Real Observatorio de Marinha (*R. Naval Observatory*).

Sociedade dos Architectos e Archeologos (*Society of Architects and Archæologists*).

Sociedade Promotora da Industrio falevil (*Society for the Promotion of Manufacturing Industry*).

Sociedade Pharmaceutica Lusitana (*Lusitanian Pharmaceutical Society*).

Sociedade des Sciencias Medicas de Lisboa (*Society of Medical Science of Lisbon*).

Oporto — Academia Polytechnica (*Polytechnic Academy*).

Escola Medico-cirurgica (*Medico-Chirurgical School*).

Instituto Industrial (*Industrial Institute*).

Museo de Historia Natural da Camara Municipal do Porto (*Museum of Natural History of Oporto*).

RUSSIA.

Arkangel—Flotskaja Biblioteka (*Naval Library*).

Astrakhan—Obschestvo Morskikh Vrachey (*Society of Naval Physicians*).

Barnäul—Meteorologicheskaia Observatoria (*Meteorological Observatory*).

Catharineburgh—Meteorologicheskaia Observatoria (*Meteorological Observatory*).

Derpt (Dorpat)—Derptskoe Obschestvo Estestvoispitateley (*Society of Naturalists of Dorpat*).

Imperatorskaia Astronomicheskaia Observatoria (*Imperial Astronomical Observatory*).

Imp. Ouniversitet (*Imper. University*).

Kaiserliche Livländische Œkonomische Societät (*Imperial Livonian Economical Society*).

Meteorologische Observatorium (*Meteorological Observatory*).

Ouchenoe Estonskoe Obschestvo (*Scientific Esthonian Society*).

Veterinair-Schule (*Veterinary School*).

Helsingfors—Finska Litteratur-Sällskapet (*Finnish Literature Society*).

Finskoe Ouchenoe Obschestvo (*Finnish Scientific Society*).

Kejserliga Alexanders-Universitetets i Finland (*Imp. Alexander University*).

Magnitnaia e Meteorologicheskaia Observatoria (*Magnetical and Meteorological Observatory*).

Obschestvo Finlandskikh Vrachey (*Society of Physicians of Finland*).

Sällskapet pro Fauna et Flora Fennica (*Society for the Finnish Fauna and Flora*).

Irkootsk—Geograficheskoe Obschestvo (*Geographical Society*).

Jaroslavl—Demidovskoy Litsey (*Demidov's Lyceum*).

Kasan—Imp. Kasanskoy Ekonomicheskoe Obschestvo (*Imp. Economical Society*).

Imperatorskoy Kasanskoy Ouniversitet (*Imp. University of Kazan*).

Obschestvo Jestestwo- Ispytatelej pri Kasanskom Universitete (*Society of Naturalists at the Imp. University of Kasan*).

Observatoria (*Observatory*).

Kharkow—Imper. Ouniversitet (*Imp. University*).

Obschestvo Ispytatelej prirody (*Society of Naturalists at the University of Kharkow*).

Veterenarnoje Utshilistshe (*Veterinary School*).

Kiew — Imperatorskoy Ouniversitet Sviatago Vladimira (*Imperial University of St. Vladimir*).

Kievskoje Obschestvo Jestestvo- Ispytatelej (*Society of Naturalists*).

Observatoria (*Observatory*).

Kronshtadt (Cronstadt)—Compasnaia Observatoria (*Compass Observatory*).

Kronshtadtskaia Morskaia Biblioteka (*Naval Library of Cronstadt*).

Morskaia Astronomicheskaia Observatoria (*Naval Astronomical Observatory*).

Obschestvo Morskikh Vrachey (*Society of Naval Physicians*).

Lebedjan (*Government Tambow*) — Lebedjanskoje Obschestvo Selskago Khoziaystva (*Society of Rural Economy of Lebedjan*).

Mitava (Mitaw) — Kurliandskoe Obschestvo Literatoori e Irkoostv (*Courland Society of Literature and Art*).

Moskva (Moscow) — Chertkovskaia Poublichnaia Biblioteka (*Chertkov's Public Library*).

Commercheskaia Akademia (*Commercial Academy*).

Etnograficheskoy Mouzey (*Ethnographical Museum*).

Fisiko-Medizinskoe Obschestvo (*Physico-Medical Society*).

Imper. Moskovskoy Obschestvo Jestestwo-Ispitatelej (*Imper. Society of Naturalists*).

Imper. Moskovskoy Obschestvo Selskago Khoziastva (*Imp. Society of Rural Economy*).

Imper. Moskovskoy Ouniversitet (*Imper. University*).

Imper. Obschestvo Istorii i Drevnostey Rossiyskikh pri Moskovskom Ouniversitete (*Imp. Society of Russian History and Antiquities at the University*).

Imper. Obschestvo Ljubitelei Jestestwosnanija, Antropologii e Etnografii (*Imp. Society of Friends of Natural Sciences, Anthropology, and Ethnography*).

Juriditsheskoje Obschestvo (*Juridical Society*).

Lasarewskij Institut Vostotshnych Jazykov (*The Lasarew-Institution of Oriental Languages*).

Moskovskoy Arkheologicheskoe Obschestvo (*Archæological Society*).

Moskovskoy Matematitsheskoje Obschestvo (*Mathematical Society*).

Moskovskoy Poublichnoy Mouzey (*Public Museum*).

Mouzey Kniazia Sergia Mikhailovicha Galizina (*Prince Sergius Galizin's Museum*).

Obschestvo Akklimatisazii Rastenij e Jewotnych (*Society of Acclimatization of Plants and Animals*).

Obschestvo drayv-russkago iskusstva, pre Moskovskom Publitshnom e Rumjanzowskom Musejach (*Society of Old-Russian arts, at the Moscovian Public and Rumjanzow-Museums*).

Obschestvo Lubiteley Khoudogestv (*Society of Amateurs of Fine Arts*).

Obschestvo Lubiteley Rossiyskoy Slovesnosti (*Society of Amateurs of Russian Literature*).

Observatoria (*Observatory*).

Petrovskaia Agronomicheskaia Academia (*Petroffsky Agricultural Academy*).

Roumianzovskaia Biblioteka e Mouzey (*Count Rumjanzow's Library and Museum*).

Rousskoe Obschestvo Ljubitelei Sadovodstva (*Russian Society of Friends of Fruit-culture*).

Slavianskoy Komitet (*Slavonic Committee*).

Narwa—Narwskoje Arkheologicheskoe Obschestvo (*Archæological Society of Narwa*).

Negin—Litsey Grafa Bezborodko (*Count Bezborodko's Lyceum*).

Nertshinsk—Meteorologicheskaia Observatoria (*Meteorological Observatory*).

Nicolaev—Observatoria (*Observatory*).

Nicolaevsk (*on Amur*)—Obschestvo Morskikh Wrachey (*Society of Naval Physicians*).

Odessa—Gorodskaiá Poublichnaia Biblioteka (*Public City Library*).

Imp. Obschestvo Selskago Khoziaystva Yoojnoy Rossii (*Imp. Society of Agronomy of Southern Russia*).

Imp. Ouniversitet (*Imp. University*).

Noworossijskoje Obschestvo Jestestwo-Ispytatelej (*Society of Naturalists of New-Russia*).

Odesskoé Obschestvo Istorii i Drevnostey (*Historical and Antiquarian Society of Odessa*).

Ouchilische Gloukho-nemikh (*Deaf and Dumb Institution*).

Poublichnaia Biblioteka (*Public Library*).

Omsk—Obschestvo Issljedowatelej Zapadnoj Sibiri (*Society of Explorers of Western-Siberia*).

Orenburg—Otdjel Imperatorskago Rousskoe Geograficheskoe Obschestvo (*Section of the Imperial Russian Geographical Society*).

Poublichnaia Biblioteka (*Public Library*).

Ouman (Kieff)—Oumanskoje Ouchilische zemledeliya i Sadovodstva (*Agricultural and Fruit-growing School*).

Poulkovo (Pulkova)—Nicolaevskaia Glavnaia Observatoria (*Nicholas Chief Observatory*).

Revel (Reval)—Estliandskoe Literatournoe Obschestvo (*Estland Literary Society*).

Riazan—Poublichnaia Biblioteka (*Public Library*).

Riga—Lettische Litterärische Gesellschaft (*Lettic Literary Society*).

Mouzey (*Museum*).

Obschestvo Jestestwo-Ispitatelej (*Society of Naturalists*).

Obschestvo Istorii i Drevnostey Rousskikh Pribaltiskikh Provinziy (*Historical and Antiquarian Society of the Russian Baltic Provinces*).

Obschestvo Practicheskikh Vrachey (*Society of Practical Physicians*).

Technicheskoe Obschestvo (*Technical Society*).

Sanct-Petersbourg (St. Petersburg)—Ego Velichestvo Imperator Vserossiyskoy (*His Imperial Majesty the Emperor of Russia*).

L. Watkins & Co., Booksellers, 10 Admiralty Place (Agents Smithsonian Institution).

Arkeograficheskoe Commissia, pri Ministerstwe Narodnago Prosswesschenija (*Archæographical Commission of the Ministry of Public Instruction*).

Filologitsheskoje Obschestvo, pri St. Peterburgskom Universitete (*Philological Society at the University of St. Petersburgh*).

Hidrograficheskoy Departament Morskago Ministerstva (*Hydrographical Department of the Ministry of Marine and Depot of Naval Charts of Russia*).

Imper. Akademia Nauk (*Imp. Academy of Sciences*).
Imper. Alexandrovskoy Litsey (*Imp. Alexander Lyceum*).
Imper. Arkheologicheskaia Commissia (*Imper. Archæological Commission*).
Imper. Arkheologicheskoe Obschestvo (*Imp. Archæological Society*).
Imper. Botanitsheskij Ssad (*Imp. Botanical Garden*).
Imper. Farmazevticheskoe Obschestvo (*Imper. Pharmaceutical Society*).
Imper. Istoriko-Filologitsheskij Institut (*Imp. Historico-Philological Institution*).
Imper. Medico-Khirourgicheskaia Academia (*Medico-Chirurgical Academy*).
Imper. Michailovskaia Artilleriyskaia Academia (*Imper. Michael Artillery Academy*).
Imper. Nicolaevskaia Ingenernaia Academia (*Imper. Nicolas Engineering Academy*).
Imper. Nicolaevskaia Voennaia Academia (*Imper. Nicolas Military Academy*).
Imper. Ouchilisché Gloukho-nemikh (*Imp. Institution for Deaf and Dumb*).
Imper. Poublichnaia Biblioteka (*Imp. Public Library*).
Imper. Rousskoe Geograficheskoe Obschestvo (*Imp. Russian Geographical Society*).
Imper. Rousskoe Mineralogicheskoe Obschestvo (*Imper. Russian Mineralogical Society*).
Imper. Rousskoe Obschestvo Sadovadstva (*Imp. Russian Society of Fruit-culture*).
Imper. St. Peterbourgskaia Academia Khoudogestv. (*Imper. St. Petersburg Academy of Fine Arts*).
Imper. St. Peterbourgskoy Ouniversitet (*Imper. University of St. Petersburg*).
Imper. Tekhnologicheskoy Institout (*Imp. Technological Institution*).
Imper. Uchilishche Prawowiedenia (*Imp. Law School*).
Imper. Volnoe Ekonomicheskoe Obschestvo (*Imp. Free Economical Society*).
Institout Korpussa Poutey Soobschenia (*The Institution of the Engineers of Public Works*).
Institout Poutey Soobschenia (*Civil Engineering Institution*).
Institout Slepikh (*Institution for the Blind*).

Lesnaia Akademia (*Forest Academy*).
Medical Department of the Imp. Russian Navy.
Ministerstvo Narodnago Prosveschenia (*Ministry of Public Instruction*).
Ministry of Finance.
Morskaia Academia (*Naval Academy*).
Morskoe Ministerstvo (*Ministry of the Marine*).
Morskoy Mouzey (*Marine Museum*).
Morskoy-Ouchenoy Comitet (*Scientific Committee of the Marine*).
Museya Imperatorskoj Akademii Nauk (*The Museums of the Imperial Academy of Sciences*).
Museya Imperatorskago Ermitasha (*The Museums of the Imperial Hermitage*).
Museya Gretsheskikh i Rimskikh Drewnostej (*The Museums of Greek and Roman Antiquities*).
Museï Instituta Korpussa Gornykh Inshenerow (*The Museums of the Mining Engineers*).
Obschestvo Jestestwo-Ispytatelej, pri St. Peterburgskom Universitete (*Society of Naturalists at the University of St. Petersburgh*).
Obschestvo Morskikh Vrachey (*Society of Naval Physicians*).
Obschestvo Rossiyskago Sadovodstva (*Society of Russian Fruitculture*).
Pedagogitsheskoje Obschestvo (*Pedagogical Society*).
Rousskoe Entomologicheskoie Obschestvo (*Russian Entomological Society*).
Rousskoe Istoritsheskoje Obschestvo (*Russian Historical Society*).
Rousskoe Khimitsheskoje Obschestvo, pri St. Peterburgskom Universitete (*Russian Chemical Society at the University of St. Petersburg*).
Selsko-Khosjajstwennyj Musej (*The Rural-economical Museum*).
Shtab Korpousa Gornikh Ingenerov (*Staff of the Corps of Mining Engineers*).
Slavianskoy Komitet (*Slavonic Committee*).
Statisticheskoy Zentralnoy Komitet (*Central Statistical Committee*).
Tekhnicheskoe Obschestvo (*Technical Society*).
Ouchenyy Komitet Ministerstva Gossudarstwennykh Imustchestw (*Scientific Committee of the Ministry of Domains*).
Voennoe Ministerstvo: Topograficheskoe Buro (*Ministry of War: Topographical Bureau*).

Vostochnoy Institout (*Oriental Institute*).
Zemledelcheskoy Institout (*Agronomical Institution*).
Zentralnaia Fisicheskaia Observatoria (*Central Physical Observatory*).

Tiflis — Kavkazskoe Geograficheskoe Obschestvo (*Caucasian Geographical Society*).
Kavkazskoe Mouzey (*Caucasian Museum*).
Kavkazskoe Obschestvo Selskago Khozaiystva (*Caucasian Society of Rural Economy*).
Magnitnaia i Meteorologicheskaia Observatoria (*Magnetical and Meteorological Observatory*)
Poublichnaia Biblioteka (*Public Library*).

Toola—Poublichnaia Biblioteka (*Public Library*).
Statisticheskoy Komitet (*Statistical Committee*).

Vilna—Arkheologicheskaia Kommissia (*Archæological Commission*).
Astronomicheskaia Observatoria (*Astronomical Observatory*).
Imp. Medizinskoje Obschestvo (*Imp. Medical Society*).
Musej Drewnostej (*The Museum of Antiquities*).
Otdjel Imp. R. Geograficheskoe Obschestvo (*Section of the Imp. Russian Geographical Society for Northwestern Russia*).
Vilna Publichnaia Biblioteka (*Public Library*).

Varshava (Warsaw) — Astronomieschkaia Observatoria (*Astronomical Observatory*).
Imper. Warshawskij Universitet (*The Imperial University*).
Mediko-Khirourgicheskaia Akademia (*Medico-Chirurgical Academy*).
Obschestvo poöstshrenija khudoshestw w Zarstwe Polskom (*Society for the Advancement of Fine Arts in Poland*)

Vladimir—Imp. School of Marine Jurisprudence.

Yarosslaw — Demidowskij Juriditsheskij Lizej (*The Juridical Lyceum of Demidoff*).
Obschestvo dlja issljedowanija Yarosslowskoj Gubernii w jestestwenno-istoritsheskom otnoshenii (*Society for the Exploration of the Government of Yaroslaw with relation to Natural History*).

SCANDINAVIA.

Skandinaviske Naturforskeres Forsamling (*Scandinavian Society of Naturalists*).

SPAIN.

Barcelona—Instituto Agricola Catalan de San Isidro (*Catalan Agricultural Institute of San Isidro*).

Real Academia de Buenas Letras de Barcelona (*Royal Academy of Polite Literature of Barcelona*).

Cadiz—Naval Observatory.

Sociedad Protectora de los Animales y las Plantas (*Society for the Protection of Animals and Plants*).

Granada—Universidad de Granada (*University of Grenada*).

Madrid—Acad. de las tres Nobles Artes des San Fernando (*Academy of the Three Noble Arts of San Fernando*).

Accademia Especial de Ingenieros (*Special Academy for Engineers*).

Biblioteca Nacional (*National Library*).

Instituto Geografico y Estadístico (*Geographical and Statistical Institute*).

Junta estadistica (*Statistical Society*).

La España Agricola, Associacion General de Labradores (*The Spanish Farmer, General Association of Workmen*).

Museo Arqueológico Nacional (*National Archæological Museum*).

Observatorio de Madrid (*Madrid Observatory*).

Real Academia de Ciencias de Madrid (*Royal Academy of Sciences of Madrid*).

Real Academia de Ciencias Morales y Politicas (*Royal Academy of Moral and Political Sciences*).

Real Academia Española Arqueologica y Geografica (*Royal Spanish Academy of Archæology and Geography*).

Real Academia de la Historia (*Royal Academy of History*).

Sociedad de Anthropologia de Madrid (*Anthropological Society of Madrid*).

Sociedad Española de Historia Natural (*Spanish Society of Natural History*).

Sociedad Geografica de Madrid (*Geographical Society of Madrid*).

Sociedad de Profesores de Ciencias (*Association of Professors of Sciences*).

Universidad de Madrid (*University of Madrid*).

San Fernando—Observatorio de Marina (*Observatory of the Navy*).

Valencia—Real Sociedad Económica (*Royal Economical Society*).

SWEDEN.

Götheborg—Kongliga Vetenskaps- och Vitterhets-Samhället (*Royal Society of Sciences and Belles-Lettres*).

Lund—Fysiografiska Sällskapet (*Physiographic Association*).
Kongliga Universitetet (*Royal University*).
Nordisk Tidsskrift för politik, ekonomi och litteratur (*Northern Journal for Politics, Economy, and Literature*).
Universitets Observatoriet (*University Observatory*).

Stockholm—Farmaceutiska Institutet (*Pharmaceutical Institute*).
Geologiska Byrån (*Geological Bureau*).
Kongliga Biblioteket (*Royal Library*).
Kongliga Landtbruks-Akademien (*Royal Academy of Agriculture*).
Kongliga Svenska Vetenskaps-Akademien (*Royal Swedish Academy of Sciences*).
Kongliga Vitterhets- Historie- och Antiquitets-Akademien (*Royal Academy of Belles-Lettres, History, and Antiquities*).
Meteorologiska Central-Anstalten (*Meteorological Central Institute*).
Observatoriet (*Observatory*).
Société Anthropologique (*Anthropological Society*).
Statistiska Central-Byrån (*Central Bureau of Statistics*).
Svenska Akademien (*Swedish Academy*).
Svenska Läkare-Sällskapet (*Swedish Society of Physicians*).

Upsala—Kongliga Universitetet (*Royal University*).
Kongliga Vetenskaps-Societeten (*Royal Society of Sciences*)
Universitets Observatoriet (*University Observatory*).

Vesterås—Elementar Läroverkets Bibliotek (*Library of the Normal School*).

SWITZERLAND.

Schweizerische Gesellschaft für die gesammten Naturwissenschaften. (*Bern.*) (*Swiss Society of Natural Sciences in general*).

Schweizerischer Alpenclub. (*Bern.*) (*Swiss Alpine Club.*)

Schweizerischer Apotheker-Verein. (*Zürich.*) (*Swiss Apothecaries' Union.*)

Schweizerische Entomologische Gesellschaft. (*Schaffhausen.*) (*Swiss Entomological Society.*)

Schweizerische Forst-Verein (*Swiss Foresters' Union*).

Schweizerische Gemeinnützige Gesellschaft. (*Bern.*) (*Swiss Society for the Public Welfare.*)

Schweizerische Historische Gesellschaft. (*Bern.*) (*Swiss Historical Society.*)

Schweizerischer Lehrerverein. (*Bern.*) (*Swiss Pedagogic Society.*)

Schweizerische Paläontologische Gesellschaft (*Swiss Palæontological Society*).

Schweizerischer Verein für Straf- und Gefängnisswesen (*Swiss Association for the Administration of Penitentiaries and Prisons*).

Verein Schweizerische Gymnasiallehrer. (*Bern.*) (*Society of Swiss Teachers of "Gymnasium."*)

Aarau—Aargauische Naturforschende Gesellschaft (*Society of Natural Science of Argau*).

Blinden und Taubstummen Institut (*Institution for the Blind and Deaf and Dumb*).

Basel (*Basle*)—Gesellschaft für vaterländische Alterthümer (*Society of National Antiquities*).

Gesellschaft zur Beförderung des Guten und Gemeinnützigen (*Society for the Promotion of Morality and Public Welfare*).

Gewerbe-Schule (*Polytechnical School*).

Naturforschende Gesellschaft (*Society of Natural Science*).

Société des Sciences (*Scientific Society*).

Universitäts-Bibliothek (*University Library*).

Bern—Conseil Fédéral Suisse (*Council of the Swiss Confederation*).
Eidgenössiches Statistisches Bureau (*Federal Statistic. Bureau*).
Kantons-Schule (*Canton School*).
Naturforschende Gesellschaft (*Society of Natural Science*).
Oekonomische Gesellschaft des Kantons Bern (*Economical Society of the Canton of Bern*).
Société des Sciences (*Scientific Society*).
Sternwarte (*Observatory*).
Universitäts-Bibliothek (*University Library*).

Chur—Naturforschende Gesellschaft Graubündens (*Society of Natural Science of Graubunden*).

Fribourg—Société d'Histoire du Canton du Fribourg (*Historical Society of the Canton of Friburg*).

Geneva—Archives des Sciences Physiques et Naturelles (*Archives of Physical and Natural Sciences*).
Association Zoologique du Léman (*Zoological Society of Lake Leman*).
Bibliothèque de la Ville (*City Library*).
Institut National Genèvois (*National Institute of Geneva*).
Musée de la Ville de Genève (*Geneva City Museum*).
Musée Zoologique (*Zoological Museum*).
Observatoire (*Observatory*).
Société des Arts de Genève (*Geneva Society of Arts*).
Société Genèvoise d'Utilité Publique (*Geneva Society for the Public Welfare*).
Société d'Histoire et d'Archéologie de Genève (*Geneva Society of History and Archæology*).
Société de Géographie (*Geographical Society*).
Société de Lecture (*Lecture Society*).
Société de Physique et d'Histoire Naturelle (*Society of Physics and Natural History*).
Société Médicale (*Medical Society*).
Société Ornithologique Suisse (*Swiss Ornithological Society*).

Lausanne—Asile des Aveugles de Lausanne (*Lausanne Blind Asylum*).
Bibliothèque Cantonale Vaudoise (*Library of the Canton of Vaud*).
Société d'Agriculture de la Suisse Romande (*Agricultural Society of French Switzerland*).

Société d'Histoire de la Suisse Romande (*Historical Society of French Switzerland*).

Société Industrielle d'Horlogerie (*Society of Watch and Clock Manufacturers*).

Société Vaudoise des Sciences Naturelles (*Society of Natural Sciences of Vaud*).

Luzern (*Lucerne*)—Historischer Verein der fünf Oerter (*Historical Society of the five places "fünf Oerter"*).

Neufchatel—Observatoire Cantonal (Dr. Hirsch, Director) (*Cantonal Observatory*).

Société des Sciences Naturelles (*Society of Natural Sciences*).

Porentruy—Société Jurassienne d'Émulation (*Jurassian Society of Emulation*).

Rheinfelden—Naturhistorische Gesellschaft (*Natural History Society*).

Rapperschwyl—Musée National Historique de la Pologne (*Historical National Museum of Poland*).

St. Gall—Concordia Institut International et École Superieure de Commerce (*Concordia International Institute and Superior Commercial School*).

Naturwissenschaftliche Gesellschaft (*Society of Natural Science*).

Redaction der Schweizerischen Wochenschrift für Pharmacie (*The Swiss Weekly Journal of Pharmacy*).

Sion—Société Valaisanne des Sciences Naturelles (*Society of Natural Sciences of the Valaise*).

Solothurn (*Soleure*)—Naturforschende Gesellschaft (*Society of Natural Science*).

Yverdon—Institute des Sourds-Muets à Yverdon (*Yverdon Deaf and Dumb Institute*).

Zurich—Eidgenössische Polytechnische Schule (*Federal Polytechnical School*).

Gesellschaft für Vaterländische Alterthümer (*Society of National Antiquities*).

Karten Verein (*Chart Association*).

Ladislas Plater (Count), Villa Broelberg.

Meteorologische Centralanstalt der Schweiz. Naturforschenden Gesellschaft (*Meteorological Central Bureau of the Swiss Society of Natural Sciences*).

Naturforschende Gesellschaft (*Society of Natural Sciences*).
Société des Sciences Physiques et Naturelles (*Society of Physical and Natural Sciences*).
Sternwarte (*Observatory*)
Universitäts-Bibliothek (*University Library*).
Verein für Landwirthschaft und Gartenbau (*Agricultural and Horticultural Society*).
Zoologisches Museum (*Zoological Museum*).

TURKEY.

Belgrad (*Serbia*)—Drushtvo srbske Slovessnosti (*Society of Serbian Literature*).

Praviteljstvena Biblioteka (*State Library*).

Constantinople—His Imperial Majesty the Sultan.

Académie Impériale de Médecine (*Imperial Academy of Medicine*).

American College.

Anjuman i Danish (*Society for Advancement of Turkish Literature*).

Bureau de Statistique (*Statistical Bureau*).

Gazette Médicale d'Orient (*Medical Gazette of the Orient*).

Hellenic Philological Society of Constantinople.

Jemiyet Ilamiyeh Osmoniyeh (*Ottoman Scientific Society*).

Library of the American Missionary Society.

Société Orientale de Constantinople (*Oriental Society*).

POLYNESIA.

Honolulu (*Sandwich Islands*)—Oahu College.
Royal Hawaiian Agricultural Society.
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MISCELLANEOUS.

Association Internationale pour le progrès des Sciences Sociales (*International Association for the Advancement of Social Sciences*).

Congrès International d'Archéologie préhistorique (*International Congress of Prehistorical Archæology*).

Congrès International des Sciences Géographiques (*International Congress of Geographical Science*).

Congrès International de Statistique (*International Congress of Statistics*).

Congresso Bacologico Internazionale (*International Congress for Silkworm Culture*).

Convention Télégraphique Internationale (*International Telegraphic Convention*).

Internationale Meterkommission (*International Meter Commission*).

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CIRCULAR IN REFERENCE TO AMERICAN ARCHÆOLOGY.

SMITHSONIAN INSTITUTION,
WASHINGTON, D. C., *February* 1, 1878.

For more than a quarter of a century, the Smithsonian Institution has been engaged in researches concerning the antiquities of America. As the result of its efforts many important memoirs have been prepared, and published in its Annual Reports and in the Contributions to Knowledge; and the National Museum, in charge of the Institution, has become the depository of the largest and most valuable collection of American aboriginal relics in the world.

In continuation of previous effort in the same direction, the Institution contemplates the publication of an exhaustive work on American Archæology, with numerous illustrations This will be accompanied by a series of maps, exhibiting by appropriate signs and colors the localities and distinctive characteristics of *ancient mounds and earthworks; shell-heaps; cave and cliff-dwellings; masonry; sculptured slabs or carved images; inscriptions and rock paintings; graves and cemeteries; aboriginal quarries and salt works; caches or deposits of objects in large quantities; workshops or places of ancient aboriginal industry; ancient roads or trails; and reservoirs and aqueducts.*

To this end the Institution desires to collect from every available source, whatever is now known, or can be ascertained by special investigation, of the antiquities of North America; and it invites the coöperation of all into whose hands this circular may fall. If the recipient has not the time or the disposition for such inquiries, he is requested to hand it to some one in his neighborhood who is known to be, or who is likely to become, interested in such matters, with the request to correspond directly with the Smithsonian Institution upon the subject.

SPECIAL MEMORANDA.

In giving a description of any of the objects named above, great care should be taken in defining *the exact locality, the site or station, the number and manner of grouping, the shape and size, the internal structure, and the contents.*

1. *Locality.*—In locating aboriginal remains, the State (or territory,) the county, the township, and the distance and direction from the nearest post office or railway station should be distinctly given. In addition to this it is advisable to name any well known stream, hill, bluff, or other remarkable natural feature in the immediate vicinity. Explorers usually refer a "find" to the land of some individual. This may answer for a secondary indication; but, inasmuch as lands are constantly changing owners, it should not be too much relied upon.

2. *Site or Station.*—Nearly all aboriginal constructions seem to have been erected with reference to some natural advantage; for example, upon a hill for observation or defense, by the water for fishing purposes, upon an alluvial plain or terrace for convenience to tillable land, &c. Again, there is reason to suppose that geological changes, such as the shifting of river beds, may have taken place since these erections were made. The site of the remains should, therefore, be described with reference to the surrounding

country, and to the natural advantages and geological history of the location.

3. *Number and Grouping.*—However abundant earthworks and other aboriginal remains may be in any locality, on careful inspection, they will generally be found in groups, having some relation to each other, to the points of the compass, or to the topographical features of the country. An accurate survey and plot, indicating each member in its place, is the most instructive method of representing the facts. Where this is impracticable the individual constituents should be carefully counted and their relative location sketched as definitely as possible.

4. *Shape and Size.* In different portions of North America the earthworks and other structures exhibit certain conventional shapes, notably the animal mounds of Wisconsin. In order to ascertain the geographical distribution of typical forms it is very desirable to obtain ground plans and sectional drawings as accurate as circumstances will allow. In several States surveys of the most celebrated works have been made, and others are in progress. The plots of Moses Strong (Smith. Rep., 1876, 424–432) may be taken as models for ground-plans. Cross-sections and elevations are important in conveying an idea of complicated works. It is well, moreover, to observe the effect of weathering and of cultivation. Notice should be taken, also, of the age of trees growing upon the work or upon lands in the vicinity supposed to have been cleared by the ancient inhabitants.

5. *Internal Structure.*—The study of the structure of an aboriginal work has reference to the nucleus or central portion, and to the enveloping mass. Leaving the former to be considered under the next heading, whatever is said here concerning structure will relate to the latter only. The internal structure of aboriginal remains depends upon their design and the material at hand, quite as much as upon the conceptions of their builders. In some the mass is homo-

geneous throughout; while in others there are layers of clay, mould, sand, and stone, varying in thickness and mode of distribution. By sinking a shaft from the centre of the apex, or by cutting a ditch on a level with the ground, from the circumference toward the centre, the structure will be revealed.

6. *Contents.*—The contents of earthworks and other ancient structures vary with the purpose which they were designed to subserve, with the locality, and, in the case of burial mounds, with the social standing of those interred within them. The greatest diversity of contents is found in the mounds of the Mississippi Valley, which, indeed, have been named burial, sacrificial, domiciliary, and defensive mounds, according to the end which they seem to have served. The most desirable objects among the contents of these mounds and other earthworks are the human remains. In order to preserve the crania and bones, as well as bone implements or other friable objects, they should be covered with boiled oil, or with a weak solution of warm white glue. When this has dried sufficiently, the process may be repeated until the tissue is completely hardened. Small fragments may be immersed in the liquid at once. Where it is practicable to save crania and other fragile objects entire, the glue may be applied before they are removed from the earth. Dr. Otis, of the Army Medical Museum, has succeeded in taking out a block of earth containing the skull, and by repeated washings and application of the glue has saved some very frail specimens. The Société d'Anthropologie de Paris has issued two pamphlets of instructions, indispensable to collectors of human remains, viz., "Instructions Craniologiques et Craniométriques" and "Instructions Générales pour les récherches Anthropologiques." With regard to the nucleus and to aboriginal relics contained therein, the explorer should examine every object in the position where first discovered, with reference to the original level of the ground, to the structure of the tumulus, and to the objects buried with it. He should disregard no object however insignificant it may seem, and record

with the most scrupulous accuracy whatever is observed. With reference to shell-heaps as well as to mounds there is evidence that the work of erection was abandoned and resumed at longer or shorter intervals, and that a long time elapsed between the commencement and completion of some of them. This would be indicated by a difference in the character of the deposits, by a change in the mode of burial, and by the more or less decayed condition of the bones found in each layer. Many interesting problems concerning race, migration, commerce, cannibalism, cremation, trepanning, disease, &c., are to be solved by an exhaustive comparison of the contents of these aboriginal constructions.

In addition to original records and descriptions concerning the objects enumerated above, the Smithsonian Institution desires to obtain copies of all books, memoirs, pamphlets, extracts from periodicals, and newspaper clippings having any relation whatever to American archæology. It also desires to be informed of the locality of all collections of American antiquities, however small, whether in private hands or in public museums. Special information concerning these collections, the number and character of the most perfect and choice specimens, together with photographs, tracings, or other drawings of the same, will also be valuable, and may enable the Institution to publish a directory of all the archæological collections in the United States.

In conclusion, the Smithsonian Institution respectfully and urgently invites contributions of specimens of aboriginal art and antiquities from all sources and from every part of the country, to be placed in the National Museum at Washington, and preserved permanently in a fire-proof building under careful supervision. The object in view is not merely to possess every variety of article, but also to ascertain the geographical distribution of each form. In this manner, important information may be obtained as to the migrations and commerce of the ancient races.

All specimens contributed will be duly accredited to the donor

in the reports of the Institution, in the proposed work on American Archæology, and on the labels of the specimens; so that, wherever the object may be, the source whence derived will be known. Instructions will be given by the Institution, on application, as to the best method and route of transmission of such collections, the freight on which will be paid on receipt in Washington.

JOSEPH HENRY,
Secretary Smithsonian Institution.

INFORMATION DESIRED AS MATERIAL FOR AN ILLUSTRATED WORK ON THE ARCHÆOLOGY OF NORTH AMERICA.

Name of Correspondent,

Occupation,

Post Office Address,

Date of Communication,

GENERAL INQUIRIES.

1. Are there any remains of ancient aboriginal structures, such as mounds, earthworks, shell-heaps, &c., in your vicinity?

2. Are there any other indications of a former occupation of the region by the aborigines?

3. Where are they located? Give State, county, nearest post office, distance and direction from some well known natural feature, and the name of the owner of the property at the date of the report.

MOUNDS AND EARTHWORKS.

4. How are they situated with reference to streams and springs of water, elevations, tillable land, or other natural features?

5. What changes, if any, have taken place in the streams, forests, and other surroundings since their erection?

6. Are the mounds isolated or in groups?

7. If the latter, what is their number and relative position? Furnish a sketch or plan, however rude it may be, with the individual mounds of the group, numbered. A topographical survey is most desirable, where it is convenient.

8. What is the size and shape in ground plans, in section, of each

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Answers to the accompanying questions may best be made by reference to the numbers without repeating the interrogatories.

member of the group? Of irregular and animal mounds a sketch with measurements of the different prominent parts should be given.

9. Of what material are they composed?

10. How is this material arranged, especially near the centre?

11. What is the construction of the centre of the work?

12. Where was the material used in the formation probably obtained?

13. Have any of the mounds been explored? Designate which ones on a plat.

14. If explored, what archæological objects were found in them?

15. What have become of those objects?

16. If any account of them or of the exploration has been published, where, and by whom?

17. Have the mounds or earthworks been injured by weathering or by cultivation?

18. Are trees growing upon any of them? If so, of what kind and dimensions?

SHELL-HEAPS.

19. What is the number of shell-heaps in your vicinity?

20. What is the location of the deposits with respect to the water and other natural features?

21. Has there been any change in the shore to submerge them, to carry a portion of them away, or to bring them above the water line and away from the beach?

22. What is the length, breadth, and depth of each?

23. Of what are they composed? Collect specimens of each species of shells.

24. What is the nature and depth of the superincumbent soil?

25. What vegetable substance used as food or for other purposes occur in them?

26. What animal or human remains have been found in them?

27. Were the bones whole, charred, or fractured?

28. Were any wood, bone, shell, or stone implements, or ornaments, or pottery discovered?

29. What were the characteristics of these objects? Make drawings or photographs if practicable.

CAVE AND CLIFF-DWELLINGS.

30. Have any caves or rock-shelters in your section of the country ever been used by the aborigines for a dwelling?

31. What advantages do these places furnish for defense, for accessibility to water, game, and other means of living?

32. Are there any indications of an attempt to improve or strengthen these places?

33. What relics of man or of his works were found, and under what conditions?

MASONRY.

In the southwestern portions of our country and from thence to the Isthmus, remains of stone and adobe structures are to be seen. If any have been found in your section—

34. What is the material of which they were built?

35. What uniting substances, if any, have been used?

36. What is the plan and probable use of the structure?

37. What attempts were made at ornamentation?

38. Is there a central excavation or estufa?

39. Was the building more than one story high?

40. How is it situated with reference to protection and convenience?

41. What relics were found in it?

SCULPTURED SLABS AND CARVED IMAGES.

In portions of the Mississippi Valley specimens of rude statuary have been found, and further south in Mexico and Central America large slabs occur covered with sculpture.

42. If sculptures occur near you, under what conditions were they found?

43. With what other remains were they associated?

44. If slabs, have they been injured by weathering?

45. Has any account, illustrated or otherwise, been published?

46. If they have been removed, in whose possession are they now?

ROCK-PAINTINGS AND INSCRIPTIONS.

On cliffs and bowlders carved and painted inscriptions have been found.

47. If any occur in your neighborhood, what is the precise location?

48. Is the design executed with paint or in sculpture?

49. What figures are represented? Give a sketch or photograph if practicable.

ABORIGINAL BURIAL.

50. Are the dead found in isolated graves, cemeteries, ossuaries, caves, or mounds?

51. Are the graves which are in groups arranged according to any plan?

52. Are they on a level tract or on a slope?

53. If the latter, what point of compass does it face?

54. Does each grave contain the remains of more than one individual?

55. Were the bodies buried in a sitting posture, stretched out, lying on the side and doubled up, or were the bones mingled indiscriminately in the grave?

56. Was the head or face of the dead directed to any particular point of the compass?

57. Are the remains simply buried in the earth, or are they en-

closed in stone circles, in cysts, in earthen jars, or in some other receptacle?

58. In what state of preservation were the bones found?

59. Are the graves deep or shallow?

60. Have they been injured by weathering?

61. Is there any evidence of dessication, mummification, cremation, or other special treatment of the remains of the dead previously to interment?

ABORIGINAL QUARRIES.

62. If any ancient quarries have been discovered, what is the material which was sought by the aborigines?

63. What is the locality, depth, and form of the excavation?

64. What evidence exists of the manner of detaching and working the material?

65. What and what kind of mining tools have been discovered?

CACHES.

Various kinds of aboriginal implements have been found deposited in large quantities as if designedly.

66. If caches have been found, what was the number, and character of the contents?

67. Where and under what circumstances were they found?

68. Were the objects kept together by the discoverer, or scattered? If the former, in whose possession are they now?

WORKSHOPS.

At certain seasons of the year some of our western tribes encamp in the neighborhood of deposits of jasper, chalcedony, and other minerals valuable for arrow-making, and manufacture a sufficient

quantity of points, knives, &c., to last them a long time. The ground around such places, for several acres, is covered with splinters, cores, spoiled points, and flaking tools.

69. Are there any traces of the manufacture of stone implements or pottery in large quantities in your vicinity?

70. If so, what is the character of the refuse?

71. Has this refuse been subjected to the action of running water, and what is the method of its aggregation under such influence?

ROUTES AND TRAILS.

72. What vestiges, if any, exist in your section of ancient trails, carrying places, fords, bridges, stone-heaps, land-marks, and whatever else would throw light upon ancient migration and commerce?

RESERVOIRS AND WATER COURSES.

73. Have any attempts been made by the aborigines of your region to construct aqueducts or reservoirs for water?

74. Do the aqueducts show any especial skill in following the natural level?

75. What is the length and other dimensions of the channel?

76. Were any attempts made at irrigation?

77. What is the size of the reservoirs, if any exist?

78. How are they lined?

79. How were they supplied with water?

BIBLIOGRAPHY.

80. Do you know of any original memoirs or surveys of these remains that have not been published? Please send the name and address of the individual who has them in possession.

81. Have any accounts of the antiquities in your neighborhood been published by your local press? Can copies be procured?

82. Have they been described in any other publication, such as magazines, proceedings of learned societies, &c.?

83. Are there any public or private collections of antiquities in your locality?

84. If so, do they contain rare and valuable specimens?

85. Have these specimens ever been figured? Drawings or other representations of those that are rare will be gratefully received by the Institution.

86. What specimens can you furnish as a contribution to the National Museum?

The following symbols, most of which are taken from the international code of Mm. Mortillet and Chantre, published in the Smithsonian Report for 1875, are designed to secure uniformity of illustration and facility of reference:

Stone heap, cairn, landmark.

Shell heap, kjökkenmödding.

Mound, or tumulus; dotted, if a stone mound.

Mardelle, pit, excavation, dug-hole.

Mound enclosing a cist or chamber.

Circumvallation, earthwork.

Earthwork enclosing tumuli. See symbols for number.

Tumulus surmounting a work and ditch.

Longitudinal earthwork, the line beneath indicates extension.

Cave dwelling or cliff structure.

Communal dwelling, pueblo.

Masonry, wall of stone or adobe.

Sculptured slabs or carved images.

Rock-paintings and inscriptions.

Hollowed stone, cup cuttings.

A row of standing stones, carved slabs, &c.

A circle or enclosure of the same, the dots may apply to other symbols.

Burial place, method not known.

Inhumation, at length.

Inhumation, in a doubled up position.

Inhumation, in a sitting position.

Cremation.

Cemetery, the stars may apply to any burial symbol.

Ossuary, many bodies in one tomb.

Sepulchral mound, the mode of burial to be added.

Cemetery mound, many separate graves.

Ossuary mound.

Cave tomb.

Quarry.

Cache, intentional deposit of many objects

Workshops, places of ancient industry.

Road, trail, ancient highway.

Reservoir.

Aqueduct.

Explored, the circle may apply to any symbol.

Several, the plus may apply to any symbol.

Many, the two marks indicating a large number.

Definite number, the figures to the right indicate the exact number.

CIRCULAR OF INQUIRIES

RELATIVE TO THE

NATURAL HISTORY OF THE AMERICAN CRAWFISH AND OTHER FRESH WATER CRUSTACEA.

SMITHSONIAN INSTITUTION,
WASHINGTON, D. C., *March* 1, 1878.

The Smithsonian Institution desires to call attention to the importance of securing for the National Museum full series of the Crawfish and other fresh-water Crustacea of North America.

Recognizing the fact that the agency of man has already exterminated forms which once inhabited the streams and fresh-water basins of the eastern side of the continent, it perceives the necessity for speedy preparation to secure the species belonging to the various faunal areas before they are forever lost to science.

Many facts have recently been added to the recorded history of the Crawfishes which enable a more exact position to be taken with regard to their origin and affinities. Many more observations, however, will be needed to fill out their history; and every fact bearing upon the subject will be of interest and value.

The student can no longer be satisfied with a bare designation of the species, but he must admit that each stage of growth has its meaning, and that so has every step in physical advance or divergence.

It should be remarked that the habits of a form may vary according to environment and attending circumstances. Thus in the crawfish, a species will build chimneys of mud in some localities,

while it will not do so in others. At one season of the year it will wander over a wide range of surface, and at another it will remain confined within narrow limits.

Distinct species live in the mountain streams and in the springs at their sources. Some frequent the marshes of the lowlands, (both the fresh and salt marshes) either near the streams, or adjacent to the bays, sounds, or ocean. Some occur beneath stones in rivers, creeks, or branches; in the muddy basins; beneath stones in the rapids; among grass and weeds in more quiet places, and in coves; under shelving grassy banks; in holes at the bottom of ponds, lakes, dams, and mill-races. Others bore holes in the meadows, or even in the hill-tops near water; and in bringing up the mud and clay from their tube-like holes, pile it as a chimney at the entrance. These species at particular times place a plug of clay in the orifice of the chimney and seal themselves in for a certain length of time.

Still others reside in the drains and mud of the rice fields and plantations of the south, and sometimes burrow through the embankments allowing the water to flood the region.

In order to secure a more full and accurate knowledge of these creatures, the Smithsonian Institution respectfully requests replies, as far as possible, to the following queries. A reference to the number will suffice in cases when it is inconvenient to write at greater length.

There are three great groups of Crawfish which may be distinguished by the difference in the shape of the front end of the head.

1. The first has the tip of the head with acute spine, and farther back with another sharp, long spine each side.

2. The second has the tip of the head acutely triangular, and usually with a minute tooth or notch each side just back of it.

3. The third has the tip of the head almost conical, with the sides a little rounded, or with the extreme tip armed with a short tooth.

Other crustacea will be found parasitic upon fishes and other aquatic creatures, some in their mouths, stomachs, or intestines, or attached to their gills, or gill covers. Other kinds inhabit the shores of bays, creeks, coves, &c., beneath rubbish, or grass, or in the sand, or on the plants submerged in the waters, or even beneath stones and other matter in ponds, sometimes at great depths.

Some attack fishes, wound them, suck their blood, or devour them; while others feed upon their eggs.

Various kinds of fishes swallow crustacea, and they may be found in their stomachs.

Catfishes often cram themselves with them, and with their eggs. Their eggs form a dainty morsel for aquatic insects and other creatures.

All these creatures of whatever form or kind will be acceptable, in all their stages, from the egg to the adult. They can be sent in alcohol, or alive, as may be most convenient.

When placed in fluid, their colors and markings should be noted and sent at the same time as the specimens.

On the last page of the present circular will be found the figure of a crawfish with a separate representation of the tail, taken from the "First Book of Zoology," by Professor E. S. Morse, (D. Appleton & Co., New York.)

Answers to the queries may refer merely to the number of the questions.

Full credit will be given to all who interest themselves to send specimens and observations.

JOSEPH HENRY,
Secretary Smithsonian Institution.

QUESTIONS.

1. What kinds of Crawfish live in your vicinity?
2. Have you one kind in your springs, and a different kind in the streams which run from them?
3. Do they live in holes made by themselves at the bottom of the springs?
4. If so, do other creatures live with them in these holes?
5. Are they active there, or elsewhere in winter?
6. Do the different parts of your streams yield different kinds?
7. If so, please report any differences in their habits?
8. Does one species master the other and chase it away, or exterminate it?
9. Does the kind in the springs destroy the floors or other parts of your spring houses?
10. Will you secure a few of the largest specimens you may find?
11. Are these large ones more shy and secretive than the medium sized ones?
12. The males may be known by the forked, hooked, or twisted ends of the first pair of legs on the fore part of the belly proper. Are the males or the females of any one kind more abundant?
13. At what dates do you find eggs on the belly of the female?
14. Does the male, or another female, help to place the eggs on the legs of the belly?
15. What is the size of the smallest female you have ever seen with eggs; and what of the largest?
16. Are the eggs sometimes smaller, or fewer, than at other times?
17. If a specimen loses her eggs does she lay a new set?

18. How soon after laying do the young ones hatch out?

19. How many times do they change their shell before leaving the mother?

20. How many times do they change within the year after leaving the mother?

21. Do they split the shell lengthwise, or how, in making the change?

22. Does the change so exhaust their energies as to cause them to remain inert?

23. If so, for how long a time?

24. Do they unite sexually at all times of the spring, summer, or autumn?

25. Do they ever so unite in winter?

26. Are they affected in any way at the times of changing of the moon?

27. Do the males fight among themselves for the possession of the female?

28. Does any species live in the wells of your region?

29. If so, in what kind of water?

30. Does the cold or darkness of such places deform them in any way?

31. How deep in the well do they live, and in what parts of it?

32. Do you find them in the standing water of limestone quarries?

33. Do they live in the pools of other kinds of quarries?

34. Are they found anywhere in strong limestone, iron, sulphur, or alkaline waters?

35. Does the sand or grit carried down by freshets kill or disable them?

36. Are they more numerous in some places now than they were formerly?

37. Has a new form come in and destroyed a former one?

38. What are its enemies in your vicinity?

39. How far does it distribute itself over your region, and does it leave localities to return to them again?

40. Are they nocturnal or diurnal in feeding, or traveling?

41. Does one sex differ from the other in such habits?

42. Do they destroy vegetables or other garden products in your region?

43. Do they cause dams to burst by burrowing through the embankments?

44. Do they sometimes swarm after rains, either during the day or night?

45. What fish feed on them in your vicinity?

46. Do they live singly, in pairs of the sexes, or in communities?

47. Does either sex choose the young for food?

48. Such as burrow in meadows away from water, how deep do they bore the hole? and in what kind of subsoil?

49. Do they always burrow until moisture or water is reached?

50. How long does it take to finish the burrow; stating the kind of ground?

51. Do they use the tail as a shovel to scoop out the soil?

52. How do they carry it to the surface, and how build the chimney?

53. How do they plug it from beneath?

54. How high do they build the chimney?

55. Does the winter rain wash it away and leave the hole open?

56. At what times, in what seasons, does it build chimneys?

57. In what kind of weather do they plug the chimney?

58. How long at a time does one work, and at what hours?

59. Do they select a tree and burrow beneath its roots, or carry the chamber beneath an underground stone for protection?

60. Does a single species sometimes live in the water, and at another time live in holes on the land?

61. Does it sometimes colonize beneath a stone or log in ditch or meadow on the approach of cold weather?

62. Have you more than one kind living upon the branches, or on the tops of, submerged weeds in your streams or ponds?

63. What is the greatest depth of water at which they are found?

64. Do the kinds which live on the weeds affect other kinds of places?

65. Do they generally rest with heads directed up stream?

66. At what seasons and times of day do these unite sexually?

67. How soon after this do they lay their eggs?

68. Does the male unite sexually with the female when she has eggs under her body?

69. Where does she go after being fecundated?

70. Does she feed during incubation?

71. Is she, or he, soft-shelled at the time of sexual union?

72. Please note peculiarities of spot from which your specimens are taken? And state temperature and depth of water?

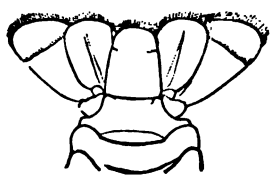
Name and address of observer,

Date of statement,

REPRESENTATION OF A CRAWFISH (*Cambarus virilis?*) FROM THE MISSISSIPPI RIVER.

Fig. 1.

Fig. 2.



Tail of Crawfish.

CIRCULAR

RELATING TO

COLLECTIONS OF LIVING REPTILES.

The Smithsonian Institution is at present engaged in the preparation, for exhibition in the National Museum, of a series of plaster casts of American reptiles taken from the living or recently dead specimens, and carefully colored from nature. For this purpose it respectfully invites contributions of the following objects:

First. Specimens of any of the turtles and terrapins found in your vicinity, with information as to whether the collection embraces all the species known; and, if not, whether others may be looked for hereafter.

Second. The largest procurable specimens of serpents, with the exception of the poisonous kinds (such as rattlesnakes, copperheads, and moccasins) in reference to the transmission of which, further and special correspondence is requested.

Third. The various kinds of salamanders, water-lizards, or ground puppies, to include the large hell-bender of the western waters; the mud pup or water-lizard of the northern lakes, or *Menobranchus;* the congo eel or ground puppy (*Siren* and *Amphiuma*) of the Southern rice-fields, etc., as well as the smaller kinds found in damp places under stones and logs. A series of the frogs will also be acceptable.

All these animals should be suitably boxed and transmitted, as far as possible, alive; or, if dead, packed in ice, so as to insure their coming in good condition. The serpents require no special precautions in the way of packing; if of nearly the same size several may be sent together. If the disproportion be very great, there is, however, danger that the larger may devour the smaller. No rattlesnakes, copperheads or moccasins should be transmitted. The turtles should be wrapped or sewed up in some kind of cloth, so as to prevent friction. They should not be sent loose with the softer objects. Serpents require no moisture; frogs and salamanders should be packed with wet moss.

Among the turtles should be included the soft-shell species, the true terrapins, the land tortoises, etc.

Single specimens of any living reptiles, as well as larger numbers, including duplicates, will always be gladly received, and due acknowledgment made for the same.

The largest procurable representatives of each species is desirable.

Transmissions may be made by any express company, freight to be paid in Washington.

JOSEPH HENRY,
Secretary S. I.

SMITHSONIAN INSTITUTION,
WASHINGTON, *February* 1, 1878.